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OUR COVER—This is our new permanent cover, courtesy of Tim Kalbach from Prosperity, South Carolina.

Nestling Diet and Prey-delivery Rates of Loggerhead Shrikes (*Lanius ludovicianus*) in North-central South Carolina

DALE E. GAWLIK[1,2], JOSEPH PAPP[3] & KEITH L. BILDSTEIN[1]

ABSTRACT

In a region of declining Loggerhead Shrike (*Lanius ludovicianus*) populations in north-central South Carolina, a pair of shrikes delivered both invertebrate (96%) and vertebrate (4%) prey to their nestlings (N = 924 deliveries). The male and female shrike contributed equal numbers of prey during 80 hours of observation on 7 days. Delivery rates, which ranged between 3 and 17 prey per hour, were higher in the morning than in the afternoon. Unfortunately, comparative delivery-rate data for stable and increasing populations of shrikes are not available.

Loggerhead Shrikes (*Lanius ludovicianus*) are known to kill and consume a variety of vertebrate and invertebrate prey (Beal and McAtee 1912, Miller 1931, Bent 1950). Much of the information on shrike diets, however, is anecdotal, pertaining either to the consumption of aberrant prey items or to the bird's unusual habit of impaling its larger prey (Stoner 1939, Bent 1950, Balda 1965, Loftin 1970, Chapman and Castro 1972, Anderson 1976, Hayes and Baker 1987).

Many shrike populations, particularly those in the central and southeastern states, are experiencing significant declines (Arbib 1972, Bystrak and Robbins 1977, Bystrak 1981, Geissler and Noon 1981, Morrison 1981, Robbins et al. 1986), which several researchers have linked to losses of feeding habitat, both within (Graber et al. 1973, Kridelbaugh 1983, Luukkonen 1987, Brooks and Temple 1990a), and outside of the breeding season (Brooks and Temple 1990b). Although Graber et al. (1973) documented the prey taken by shrikes in a declining population in Illinois, aside from a brief reference in Applegate (1977), there are no published data on prey-delivery rates at shrike nests. Here, we report on nestling diet and prey-delivery rates for a pair of Loggerhead Shrikes in South Carolina within a region of declining populations.

In April and May of 1987 in York County, South Carolina, we observed a shrike nest containing 5 nestlings during 5 full-day (dawn to dark) and 2 half-day (one morning and one afternoon) periods. For a complete description of the area see Gawlik and Bildstein (1990). The nest was 4.3 m above the ground in an exposed red cedar (*Juniperus virginianus*). Both Adults and the five nestlings were banded with U. S. Fish and Wildlife Service aluminum bands, and unique combinations of three plastic colored bands. We observed birds at this nest from 6 to 18 days after hatching (at which time the birds fledged), from a blind 8 m from the nest-tree and 4 m above the ground. Each time food was brought to the nest, we recorded the sex of the adult shrike (determined by the presence or absence of a brood patch during color-banding), time of day, and type of prey.

During the 804 prey deliveries in which the parent bird was identified, the male shrike brought prey to the nest 406 (50.5%) times, while the female brought prey to the nest 398 (49.5%) times. Similarly, Miller (1931) reported that a female made "about half" of the prey deliveries at a nest in California. Kridelbaugh (1983) reported that males delivered the majority of prey items to nests in Missouri. Although the male and female in our study delivered approximately equal numbers of prey items to the nestlings, some of the items brought by the female were taken from a honey locust (*Gleditsia triacanthos*) 18 m from the nest-tree, where the male had impaled them previously. Similarly, Applegate (1977) reported that a female shrike in Illinois often removed prey items previously impaled by the male, and delivered them to nestlings.

We were able to identify visually 155 of 924 (17%) prey items delivered to the nest. Invertebrates comprised 96% of the identified prey items, and vertebrates made up 4%. Fifty-nine percent of all identified prey items were Orthopterans; 15% Lepidopterans; 10% Coleopterans; 8% were arthropod larvae; 4% were mammals, reptiles and amphibians; and 3% were unidentified arthropods. Orthopterans, Lepidopterans, and Coleopterans accounted for the majority of prey items in other studies as well (Beal and McAtee 1912, Graber et al. 1973).

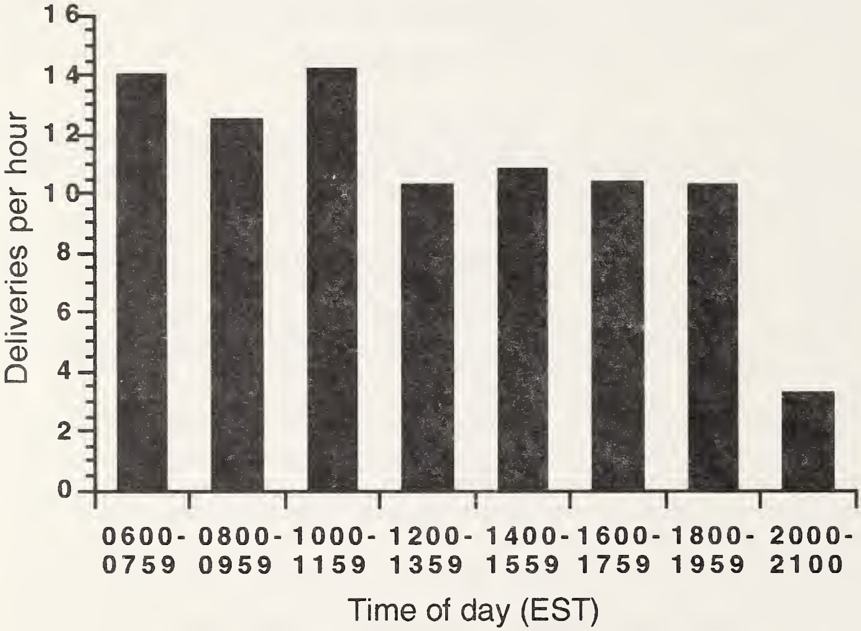

Figure 1. Time-of-day changes in the rates of prey-delivery to five nestling Loggerhead Shrikes (N = 79.8 hours) at a nest in York County, South Carolina. All times given are Eastern Standard Time.

Graber et al. (1973) reported that invertebrates never comprised less than 94% of the stomach contents of shrikes throughout the year in a declining shrike population in Illinois, and that they comprised 95% of the stomach contents collected in April (coinciding with our observation period). Much earlier in this century, stomach contents of shrikes in the eastern United States (averaged over an entire year) contained 72% invertebrates and 28% vertebrates (Beal and McAtee 1912). In western states, where insects were reportedly available throughout the year, shrikes took up to 88% invertebrates and 12% vertebrates (Beal and McAtee 1912). Although, prey composition of shrikes varies with season and region (Beal and McAtee 1912, Miller 1931, Graber et al. 1973), these data suggest that vertebrates comprised a larger portion of the diet earlier in this century. Whether this apparent dietary shift has played a role in recent declines in shrike populations is unclear.

The shrikes we watched occasionally brought "runs" of similar prey to the nest within the same day (e.g., 78% of all Lepidopterans were delivered in one day and 45% of all grasshoppers were delivered in one day). Insects often emerge synchronously, and our observations support the notion that shrikes feed opportunistically on the most available prey (Miller 1931). For example, when we placed a clear plastic tray containing about 24 crickets within 20 m of the nest, the female shrike repeatedly captured and delivered crickets to the nest until she exhausted the supply.

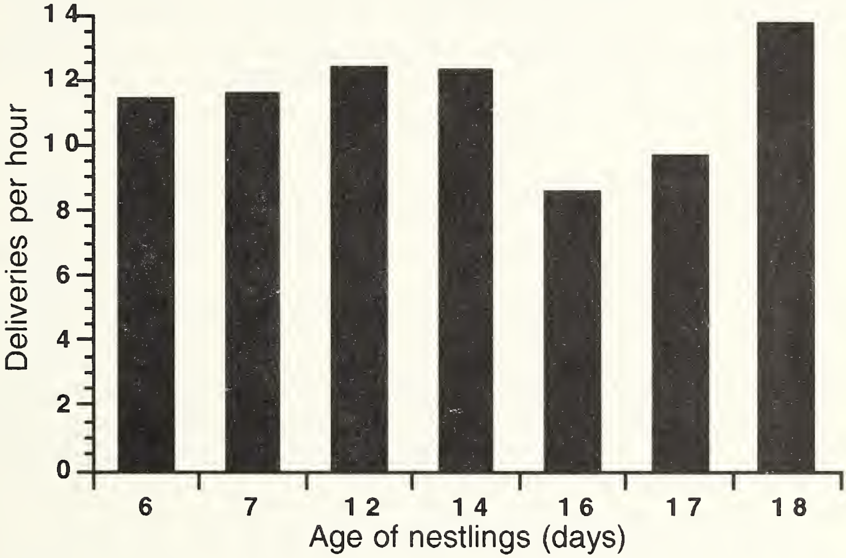

Figure 2. Daily changes in the rates of prey-delivery to five nestling Loggerhead Shrikes (N = 79.8 hours) at a nest in York County, South Carolina.

Shrikes delivered between 3 and 17 prey per hour, with the delivery rate decreasing somewhat over the day (r = -0.34, P = 0.002), although much of the decline can be attributed to a drop in prey delivery after 20:00 hours EST (Figure 1). (Note: Consult Sokal and Rohlf [1969] for an explanation of the statistical tests used in this paper.) Pre- and post-noon prey-delivery rates at the nest were not significantly different (t-test, $P > 0.05$) from those recorded at a second nest 5.4 km away with five 15-day old young, which we watched during an additional day of observation (first nest: pre-noon $x = 13.6 \pm 6.0$, $N = 35$ hrs., and post-noon $x = 9.9 \pm 4.8$, $N = 47$ hrs., vs. second nest: $x = 12.3 \pm 4.5$, $N = 6$ hrs. and $x = 10.6 \pm 5.8$, $N = 9$ hrs, respectively).

The rate of prey-delivery increased from day 6 to 12 and then decreased between day 12 and 16. the highest rate of prey-delivery, however, occurred on day 18 as the young fledged (Figure 2). O'Connor (1984) reports that increases in feeding rates with age are typical of most species of birds.

All 10 of the young at the two nests we watched fledged, as did 144 of 163 (88%) nestlings at 34 nests during a 2-year study of reproductive success (Gawlik and Bildstein 1990) at the site. Although our observations of reproductive success do not suggest that parental shrikes were having difficulty finding sufficient prey for their young, similar data for shrikes in stable and increasing populations are not available for comparison.

ACKNOWLEDGEMENTS

W. Irvin, J. Jackson, and C. R. Smith made helpful comments on earlier drafts of our manuscript. Funding for our study was provided by the South Carolina Wildlife and Marine Resources Department's Nongame-Heritage Trust Program, and by Winthrop College. Louis and Carol Gawlik kindly provided additional financial support. We thank Edna Gardner for the use of her property and Brett Clavenna for his assistance in the field.

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NOTICE

ELOISE F. POTTER was named Editor *emeritus* of *The Chat* by the Executive Committee of the Carolina Bird Club during the 1990 Fall meeting in Asheville, NC, on 22 September 1990. This honor is in recognition of her many years of service to the Carolina Bird Club, and especially her skillful editorship of *The Chat* from 1962 to 1987.

General Field Notes

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NOTICE

Publication of any unusual sightings of birds in the Field Notes or Briefs for the Files does not imply that these reports have been accepted into the official Checklist of Birds records for either North or South Carolina. Decisions regarding the official Checklists are made by the respective State Records Committees and will be reported upon periodically in THE CHAT.

Nest Predation by a Red-bellied Woodpecker

PARIS TRAIL
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On 20 May 1990, I located the nest of a pair of Acadian Flycatchers (*Empidonax virescens*) about 4 mi. N of Edenton, Chowan Co., North Carolina. The nest was in a beech tree at the end of a limb about 5 m above the ground, over a broad ditch of flowing water, and about 50 m from my back porch. The female was incubating a clutch of three eggs. On 3 June, as I sat on the porch, I heard both birds of the pair calling and scolding loudly. Walking to the edge of the yard and using a pair of 7X binoculars, I observed a Red-bellied Woodpecker (*Melanerpes carolinus*) clinging to the edge of the nest and pecking into the nest. Both of the flycatchers were diving at the woodpecker while scolding and bill-popping. A Downy woodpecker (*Picoides pubescens*) and a female Summer Tanager (*Piranga rubra*) were attracted to the noise and also began to scold. The Red-bellied Woodpecker ignored the other birds and, as I watched through binoculars, picked up a tiny flycatcher nestling in its beak and flew up into a large Red Oak tree. It placed the nestling in a bark crevice, pecked it several times, and swallowed it. It came back to the flycatcher nest, but I tossed a stick at it and scared it away.

For the next hour I observed both flycatcher parents at the nest through a Celestron telescope with a 45X eyepiece. Both adults brought small food items to the nest, sat on the nest edge looking confused, then flew a short distance away. One adult, presumably the female, arrived at the nest and sat in it briefly before flying off. One of the birds returned, sat on the edge of the nest for about a minute, and then began to hook an egg under its beak and attempt to roll it out of the nest. After several minutes it succeeded in removing the egg from the nest. The egg fell into the water below where it floated and I retrieved it. The egg was a flycatcher egg but was infertile, and had a small puncture at the narrow end. I believe that two eggs in the flycatcher nest hatched and that the Red-bellied Woodpecker ate the other nestling just before I arrived.

Similar episodes have been reported by other observers. Roach (Fla. Field Nat. 3:19) saw a male Red-bellied Woodpecker remove three young and one egg from a nest that may have been its own or that of a neighboring pair of the same species. Roach could not determine whether the adult was a parent trying to move the young to another cavity or a competitor attempting to clean out the cavity for its own use. Watt (Wilson Bull. 92:249) saw a female Red-bellied Woodpecker remove three young in succession from an American Redstart (*Setophaga ruticilla*) nest. Neither woodpecker was seen eating the nestlings. Dunn (Chat 48:74) saw a male Red-bellied Woodpecker pull a White-breasted Nuthatch (*Sitta carolinensis*) nestling from a hole in a Tupelo Gum (*Nyssa sylvatica*), fly with it to a higher branch, and proceed to eat it.

Red-bellied Woodpeckers are quite active in the woods around our house. Other species known to nest in the area include Wood Thrushes (*Hylocichla mustelina*), Summer Tanagers, Eastern Wood Pewees (*Contopus virens*), Red-eyed Vireos (*Vireo olivaceus*), and Ruby-throated Hummingbirds (*Archilochus colubris*). I think that nest predation in these woods by Red-bellied Woodpeckers might be one of the limiting factors in the breeding success of these small woodland birds.

According to Harrison (A Field Guide to Birds Nests) Acadian Flycatchers are single brooded and while this pair remained around the yard during June, July, and early August, I have not been able to find any evidence that they renested.

Late-Season High-Elevation Breeding Record of Cedar Waxwing in the North Carolina Mountains

BILL DUYCK
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Around 25 August 1984, Duyck found a nest with two fresh eggs of the Cedar Waxwing (*Bombycilla cedrorum*) at 1769 m on Black Balsam Knob, Haywood County, North Carolina. The nest was 1.2 m above ground in a *Rhododendron* 1.5 m tall. Habitat was extensive *Rhododendron* (spp.) and northern hardwood shrubs and thickets on the north slope of the mountain. The nest was checked almost daily thereafter. Two adults associated at the nest and no further eggs were laid. The clutch hatched on 3 September. One of the nestlings disappeared, but the remaining bird was fed by the adults through 16 September. That night, a severe freeze with thick hoar frost occurred. When Duyck returned to check the nest on 17 September, the nestling was frozen and the adults were absent.

On 25 August 1987, McNair found one bird of a pair of waxwings nest-building at 1708 m, about 3 km W of the above locality in the Great Balsam Mountains. The nest was placed 2.1 m above ground in the crotch of a 4.6-m-high yellow birch (*Betula lutea*) near the edge of a young northern hardwood and red spruce (*Picea rubens*) forest. On 15 September, the nest was finished, but contained no eggs. Only one adult waxwing was in the vicinity. Later checks confirmed that the nest had been abandoned.

Cedar Waxwing nests with eggs or young have been found in the southeastern United States occasionally through late August, including ones in upper and middle elevations of the Blue Ridge Mountains (McNair, 1987). Although waxwings are most numerous as breeders in North Carolina at upper and middle elevations of the Blue Ridge Mountains, severe weather at the upper elevations may limit opportunities for successful breeding late in the year. Nevertheless, to determine the frequency and importance of late-season breeding at various elevations requires thorough study.

Acknowledgements. We thank R. Knight, L. Moseley, C. Nicholson, and E. F. Potter for reviewing this note.

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Strange Behavior in a Canada Goose

ALBERT E. CONWAY
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In early June, 1990, a local resident observed a Canada Goose (*Branta canadensis*) harassing Mallard (*Anas platyrhynchos*) ducklings on his two-acre pond. The goose would seize the ducklings and hold them under the water for short periods, but none was drowned. He was aggressive toward Wood Ducks (*Aix sponsa*) and domestic white geese (*Anser anser*), chasing them from the pond.

Fearing that the goose would eventually harm the other waterfowl, the man shot it. The U. S. Fish and Wildlife Service band indicated that the goose had been banded as a gosling at a nearby pond on 1 August 1988.

A search of the literature did not yield any accounts of similar behavior in Canada Geese.

Interspecific Feeding Among Some Oscines

DOUGLAS B. MCNAIR
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Asheville, NC 28806

American Robin.—In May 1978, Duyck watched an adult American Robin (*Turdus migratorius*) of unknown sex feed nestling Eastern Bluebirds (*Sialia sialis*) in a nest box 2 m above ground in the yard of a suburban home. The home was owned by N. Hayes and is located at 171 School Road, near the intersection with Interstate 40 in Oakley, Buncombe County, North Carolina. The robin caught earthworms and other prey on the lawn of the home and made about 15 trips in 2 h to the nest-box, where it fed several large bluebird nestlings at the cavity entrance (Fig. 1). The nesting pair of adult bluebirds was present near the nest-box but did not attempt to interfere with the robin while the latter foraged alone on the lawn or fed the nestlings. However, both adult bluebirds also fed the nestling bluebirds (Figs. 2, 3), which sometimes expelled fecal sacs as they were being fed, a normal behavior (Eltzroth and Robinson, 1984). After fledging, both adult bluebirds and the robin continued to feed the young bluebirds. Throughout these nesting events, neither the adult bluebirds nor the robin appeared to be alarmed.

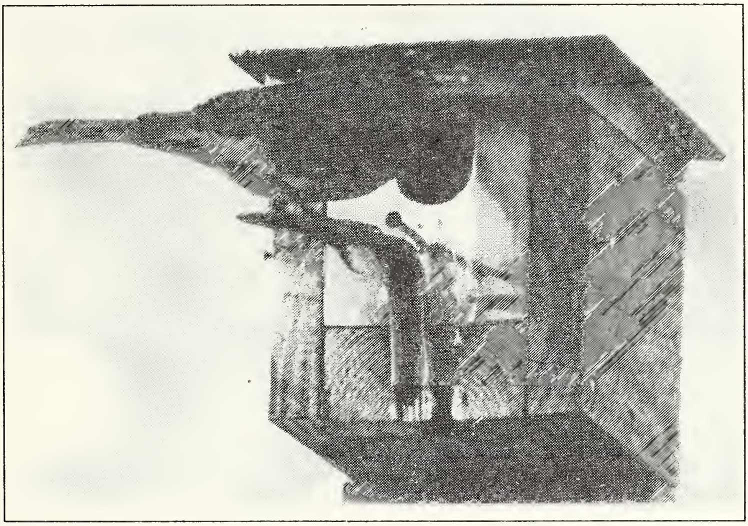

Fig. 1. An American Robin is perched at the entrance of a nest-box occupied by Eastern Bluebirds. The robin fed the nestling bluebirds soon afterwards. Notice one nestling gaping at the cavity entrance in the upper-left corner. Photo by B. Duyck.

Shy (1982) reviewed interspecific feeding among birds and listed six reports of the American Robin feeding nestlings of four open-cup breeding species. Consequently, our report appears to be the first to document an

American Robin feeding nestlings of an Eastern Bluebird, of a thrush, and of a cavity-nesting species.

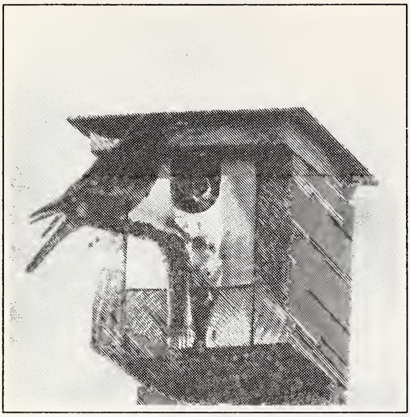

Fig. 2. The male Eastern Bluebird is perched at the entrance of the nest-box, waiting to feed the nestlings, one of which is conspicuously gaping at the entrance. The photograph was taken minutes after the photo of the robin at the nest-box. Photo by B. Duyck.

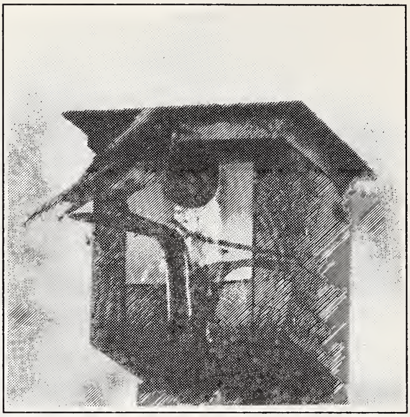

Fig. 3. The female Eastern Bluebird is likewise waiting to feed the nestlings at the cavity entrance. Photo by B. Duyck.

Three of the six previous reports of interspecific feeding by American Robins concerned nest-sharing (Shy, 1982). That explanation does not apply to our report because the nest-box was completely enclosed and the cavity entrance was too small to admit a robin.

Brown Thrasher.—On 7 June 1982 at Fayetteville, Washington County, Arkansas, J. Neal watched an adult Brown Thrasher (*Toxostoma rufum*) of unknown sex feed a fledgling female Rufous-sided Towhee (*Pipilo erthrophthalmus*) (Am. Birds 36:988, 1982). The fledgling towhee was fed later by an adult male Rufous-sided Towhee.

Neal's report is apparently the first to unambiguously document a Brown Thrasher feeding young of another species (Shy, 1982). Wayne (1910) mentions that a Brown Thrasher fed nestling and fledgling Northern Mockingbirds (*Mimus polyglottos*) from a single nest, a case of probable interspecific feeding, not interspecific pairing (K. C. Parkes, pers. comm.). Shy (1982) listed the Gray Catbird (*Dumetella carolinensis*) as the only species of Mimidae known to feed young of a different species.

Cedar Waxwing.—On 14 August 1977, McNair watched a juvenile Red-eyed Vireo (*Vireo olivaceus*) beg for food from an adult Cedar Waxwing (*Bombycilla cedrorum*) of unknown sex in young open mixed woodlands near Massachusetts Highway 2 at Florida, Berkshire County. The vireo called loudly as it attempted to solicit food for 30 sec from the waxwing. McNair was uncertain whether the waxwing fed the vireo at that time, but he watched it feed berries to one juvenile waxwing soon afterwards. The waxwings were among a small flock of waxwings, both adults and juveniles, and foraging nearby were species other than the vireo, e.g., Black-throated Green Warbler (*Dendroica virens*) and Black-and-white Warbler (*Mniotilta varia*). No birds interfered with the adult waxwing as it fed the juvenile waxwing or when the juvenile vireo begged for food.

Our report appears to be the first to suggest a Cedar Waxwing (or any bombycillid possibly feeding young of another species. Shy (1982) did not report any interspecific feeding by bombycillids. Fledglings may solicit food from adults of different species, one proximate cause of interspecific feeding among birds (Shy, 1982).

Northern Oriole.—On one day in June in the 1980's, C. B. Quinlan watched an adult male Northern Oriole (*Icterus galbula*) feed nestling Orchard Orioles (*I. spurius*) at their nest 4 m above ground in a 11-m-tall white pine (*Pinus strobus*) near Lake Chauncy at Framingham, Middlesex County, Massachusetts. The Northern Oriole made several trips in 2 h to the nest, where it fed caterpillars to several Orchard Oriole nestlings. The nesting pair of Orchard Orioles was also present. During the same 2 h, the second-year male made about 8 trips to the nest, where it fed insects to its young. The female did not visit the nest during this period. No interactions between the two species of adults were seen.

Our report appears to be the first to document a Northern (Baltimore) Oriole feeding young of another species (Shy, 1982). Shy listed the Common Grackle (*Quiscalus quiscula*) as the only species of Icteridae known to feed young of a different species.

Conclusion.—Except for the case of the Cedar Waxwing feeding the Red-eyed Vireo, we cannot assign proximate causes for the interspecific feeding of young reported above, based on the eight categories of Shy (1982), because we do not know the prior history of any of the adult oscines. Shy (1982) and Eltzroth and Robinson (1984) state that misdirected parental care is the most likely explanation when adult birds feed young of different species. Although misdirected parental care may apply to all but one of the reports above, we have no direct evidence that the adult oscines were in breeding condition.

Acknowledgments. We thank K. C. Parkes for his comments on the account in Wayne (1910). We thank L. Moseley and E. F. Potter for reviewing our note. A report in the Central Southern Region of American Birds is not listed in the literature cited section.

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BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates Fall 1989 through Spring 1990; CBC = Christmas Bird Count)

HORNED GREBE: David Wright noted as many as 180 at Lake Norman, N.C., during the winter for an excellent inland count.

RED-NECKED GREBE: There was a surprising influx into coastal waters during the winter. Two were seen by Lex Glover et al. from the Ocracoke - Cedar Island, N.C., ferry on 4 February. Single birds noted in that state were at Figure Eight Island in New Hanover County on 10 December (Derb Carter), at Atlantic Beach on 17 December (Paul Spitzer), at Cape Hatteras point on 11 January (Marcia Lyons), at Rodanthe on 16 January (John Fussell), and at Nags Head on 4 February during the Carolina Bird Club meeting (Ricky Davis et al.). In South Carolina one was seen by Lex Glover at Huntington Beach SP on 31 December, and perhaps the same bird was there on 3 February (Peter Worthington).

EARED GREBE: Eric Dean reported that one of the grebes present during the fall at the Goldsboro, N.C., water treatment ponds remained through 16 December. In the Cape Hatteras vicinity, one was seen on several dates from 12 December (Mark Crotteau, Todd Hass) to 11 March (Russ Tyndall); it was also noted by some members of the Carolina Bird Club on 3 February.

AMERICAN WHITE PELICAN: The flock of pelicans at Pea Island, N.C., in November remained in the general area at least through 23 February, when nine were counted by Rick Knight; surprisingly the birds were missed on the Bodie-Pea Island CBC in late December. Single pelicans were also notable at Hatteras Inlet, N.C., on 2 December (Henry Haberyan), near the Charleston, S.C., airport on 11 January (D. Watts), and at Bear Island, S.C., on 24 February (Perry Nugent et al.).

GREAT CORMORANT: This species continues to increase as a winter visitor to Carolina waters. An excellent count was 11 on old pilings at New River Inlet, N.C., on 12 February, as noted by John Fussell. He also observed three birds in the bight at Cape Lookout, N.C., on 11 February.

DOUBLE-CRESTED CORMORANT: Notable in the mountains in winter was one seen by Robert Ruiz on Lake Tahoma in McDowell County, N.C., on 17 February.

ANHINGA: Perhaps a record count for North Carolina was a flock of at least 60 soaring in a thermal at Goldsboro, N.C., on 24 September. Eric Dean believed they were displaced by Hurricane Hugo, which passed the area two days prior to the sighting. Notable winter records inland were single birds at Lugoff, S.C., on 25 January (Lex Glover) and at Jessup's Mill Pond in Cumberland County, N.C., on 16 February (Philip Crutchfield).

GREAT EGRET: Rare in the piedmont in winter was one present at Lake Crabtree near Morrisville, N.C., from 28 January to 10 February (Harry LeGrand, Robert Hader, Chapel Hill Bird Club).

GLOSSY IBIS: An outstanding winter count was 77, perhaps early spring migrants, at Bear Island, S.C., on 24 February (Perry Nugent et al.). One was at Huntington Beach SP, S.C., on 3 February (Peter Worthington).

FULVOUS WHISTLING-DUCK: The only report for the winter was a count of up to seven birds during the season at an impoundment near Davis, N.C. (Dallas Salter).

TUNDRA SWAN: This increasing species wintered in unprecedented numbers in Carteret County, N.C., where up to 1000 were at the Davis impoundment during the season (Dallas Salter). A count of five was notable at Savannah NWR, S.C., on 13 January (Paul Raney). Rare for the piedmont were single birds seen by Harry LeGrand south of Raleigh, N.C., on 21 January and by Fred Hill in northern Mecklenburg County, N.C., in February.

GREATER WHITE-FRONTED GOOSE: Tim Kalbach observed one at Santee NWR, S.C., on 30 December for the only winter report for the Carolinas.

SNOW GOOSE: One white phase individual was seen at Raleigh on 16 December by Robert Hader, who noted that two blue phase birds joined the former bird in January. In northern Mecklenburg County, David Wright observed a white phase bird from 26 December to the end of the winter and a blue phase bird from 14 January to late February. Dennis Forsythe and party saw six Snows at Savannah NWR on 10 December, and John Fussell saw one near Drum Inlet, N.C., on 24 February.

ROSS' GOOSE: The first inland record for the Carolinas was one seen well by Derb Carter at Pungo Lake, N.C., on 1 February. One was much less unusual, though still notable, at Pea Island, N.C., on 28 December (Paul Sykes, Mike Tove, et al.).

BRANT: The exceptionally cold weather in December caused the freezing up of many bays to the north of the Carolinas, forcing Brants and other waterfowl into the Carolinas in heavy numbers. Excellent counts for South Carolina included 107 in the Charleston harbor on 27 January (Perry Nugent), 46 at Raccoon Key on 28 January (Nugent), 25+ at Moore's Landing on 31 December (Dennis Forsythe), and 20+ at Huntington Beach SP on 14 January (Forsythe). Notable counts in North Carolina were 67 on the Southport CBC on 31 December (fide Bill Brokaw) and 52 on the Wilmington CBC on 30 December (fide Frances Needham).

NORTHERN PINTAIL: Herb Hendrickson observed six near Greensboro, N.C., on 20 January; the species is rather rare in midwinter in the piedmont.

BLUE-WINGED TEAL: Quite unusual inland in midwinter was a female seen at Cowans Ford Refuge north of Charlotte, N.C., on 14 January (David Wright).

EURASIAN WIGEON: A male was again present at the impoundment at Davis, N.C., being seen from 3 December (Henry Haberyan) into March, when two pairs were reported on 5 March by Rich Boyd. Males were seen at two impoundments at Pea Island on 28 December by Mike Tove and Paul Sykes.

GREATER SCAUP: Herb Hendrickson observed a male on 20 January, and two males on 30 and 31 January, at Greensboro. In inland South Carolina, noteworthy were five at the Savannah River Plant on 19 December (Anne

Waters) and two males and two females at Dreher Island SP, S.C., on 9 January (Tim Kalbach).

COMMON EIDER: An immature male was present in the Beaufort Inlet, N.C., area from 10 to 27 December, as noted by John Fussell. Elsewhere along the North Carolina coast were single birds on the Wilmington CBC on 30 December (fide Sam Cooper), at Cape Hatteras on 11 January (Marcia Lyons), and at Pea Island from 2 to 4 February (Philip Crutchfield, Carolina Bird Club). A female and an immature male were noted on 13 January at Huntington Beach SP, S.C., by Lex Glover and Roger McNeill.

KING EIDER: There were surprisingly only three reports with details for the winter. One was seen on the Bodie-Pea Island CBC on 28 December (fide Paul Sykes), another was on the Wilmington CBC on 30 December (Sam Cooper), and a first-winter male was present during the winter at Huntington Beach SP (Dennis Forsythe, Tim Kalbach).

HARLEQUIN DUCK: An outstanding "flight" reached coastal Carolina this winter. Four were present near the Cape Hatteras lighthouse on 11 January (Marcia Lyons) and 2 February (Lex Glover party). Four were also at a pier at Topsail Island, N.C., on 26 January (John Fussell, Deb Squires), and three birds — perhaps from the above group of four — were at the nearby pier at Surf City on 12 February (Fussell). Four individuals were also found at Wrightsville Beach, N.C., on 30 December (Sam Cooper). Also in North Carolina were two females seen much of the winter at the Oregon Inlet bridge (Fussell, John Wright, et al.), one at the Cedar Island ferry terminal on 3 December (Henry Haberyan), and one at a pier at Nags Head on 4 February (Ricky Davis, Carolina Bird Club). The only reports for South Carolina came from the jetties at Huntington Beach SP, where as many as two birds were present during the winter (Dennis Forsythe, Peter Worthington).

OLDSQUAW: Ken Knapp observed two birds on Jordan Lake in Chatham County, N.C., on 31 December; five Oldsquaws were there on 13 January (Knapp, Tom Street, Henry Link, Herb Hendrickson). A single bird was seen on the Buncombe County, N.C., CBC on 17 December (fide Ruth Young). In inland South Carolina, two were present on Par Pond at the Savannah River Plant for more than a month during the winter (Anne Waters, Peter Stangel); one was seen near Clemson on 16 and 17 December (Ben Sill party); and one was at Dreher Island SP from 25 February to 3 March (Tim Kalbach).

SURF SCOTER: An excellent inland count was a group of five females or immatures at Cane Creek Reservoir, Orange County, N.C., on 2 December, as seen by Doug Shadwick and party.

WHITE-WINGED SCOTER: One spent the period from 16 December to late January on Lake Brandt and Lake Higgins near Greensboro, as seen by Henry Link and others. Another White-winged inland was a female noted by Taylor Piephoff and David Wright at the southern end of Lake Norman, N.C., on 15 December. Outstanding numbers were present along the coast during the winter, highlighted by 298 on the Bodie-Pea Island CBC on 28 December (fide Paul Sykes).

COMMON GOLDENEYE: Notable inland totals for North Carolina were 16 on the Pamlico River near Aurora on 20 January (Russ Tyndall) and six at Jordan Lake on 13 January (Ken Knapp).

COMMON MERGANSER: Perhaps unprecedented was a count of 205 birds, at least 30 being adult males, on Lake Phelps, N.C., made by Merrill Lynch on 13 January. The species was widespread on many North Carolina CBC's this winter, the best report being of 11 on the Southport CBC on 31 December (fide Bill Brokaw). Herb Hendrickson and others noted as many as eight birds in the Greensboro area from January to 1 February.

RED-BREASTED MERGANSER: A notable inland count was 90 reported in late November on Par Pond at the Savannah River Plant (Peter Stangel).

ROUGH-LEGGED HAWK: The most "co-operative" Rough-legged Hawk ever seen in the Carolinas was a dark-phase bird that perched on telephone wires along US 70 between LaGrange and Kinston, N.C., from 22 January to 25 February. It was found by Betty Grady and was seen by dozens of birders; photos by her and John Fussell have been submitted to the State Museum of Natural Sciences for documentation. A light-phase bird was seen by Allen Bryan on 7 January and by Ricky Davis two days later along I-85 in western Davidson County, N.C. John Wright saw two birds flying over NC 11 near Ayden, N.C., on 1 February, and Russ Tyndall saw a light-phase bird north of Aurora, N.C., on 20 January.

GOLDEN EAGLE: An immature was a notable find at Santee NWR, S.C., on 13 January by Tim and Mark Kalbach. In the mountains of North Carolina, one was seen on 9 January at Big Bald Mountain (Rad Mayfield), and perhaps the same bird was noted at nearby Roan Mountain on 6 and 11 February (Brian Cross, Tom McNeil).

MERLIN: The only inland report for the winter was one seen near Goldsboro on 27 February by Eric Dean.

PEREGRINE FALCON: Formerly very rarely reported inland in winter, there were at least seven such reports this season. Single birds in North Carolina were observed near Greenville on 11 December (John Wright), near Goldsboro on 23 January (Eric Dean), in downtown Charlotte from 29 January to the end of February (fide David Wright), at Roan Mountain on 6 and 8 February (Brian Cross, Rick Knight), and at Jordan Lake on 27 February (Paul Saraceni). Inland South Carolina records were of birds on the Clemson CBC on 16 December (fide Steve Wagner) and at Santee NWR on 13 January (Tim Kalbach).

YELLOW RAIL: Although not seen, individuals were heard calling in response to rock-tapping east of Columbia, S.C., on 8 December by John Cely and on 16 December by Tim Kalbach, and at Santee NWR on 30 December by Kalbach. [None of the birds heard calling in the Columbia area over the past few years has been seen to prove without a doubt that Yellow Rails are present, but the answering of clicking and the wet grassy habitat seem to provide little doubt about the records. — HEL]

SORA: Rare in midwinter in the piedmont were one or two on 13 January at a marsh in a quarry in southern Mecklenburg County, N.C. (David Wright, Taylor Piephoff, Jeff Wright).

COMMON MOORHEN: At the same marsh where the Sora was found, two moorhens were seen on 30 December by Heathy Walker, David Wright, and Kevin Hennings. This species is seldom reported in winter in the piedmont.

AMERICAN AVOCET: The only shorebirds seen by John Fussell, John Wright, and Paula Wright along 5 miles of beach north of Corolla, N.C., on 4 February were two avocets. Fussell also noted another bird in the Beaufort, N.C., area, where locally rare, from 14 December to 12 January.

SPOTTED SANDPIPER: Three were notable on 16 December at Goldsboro (Gene Howe, Betty Grady, Russ Tyndall); two were still there on 6 January (Eric Dean).

WHIMBREL: Despite a very cold December, with a foot of snow on 23 December, up to eight Whimbrels managed to spend the entire winter at Bird Shoal near Beaufort, N.C., as noted by John Fussell. He also saw two more birds at the southeastern end of nearby Shackleford Banks on 9 February.

LONG-BILLED CURLEW: An excellent Carolina count was six seen by Perry Nugent at Lighthouse Island in Cape Romain NWR, S.C., on 28 January. One spent the winter at Bird Shoal near Beaufort, N.C., and a second bird was seen there on 31 January (John Fussell).

LEAST SANDPIPER: A notable inland count for the species was 48 tallied on the Goldsboro CBC on 16 December (fide Eric Dean).

PECTORAL SANDPIPER: Normally arriving in the Carolinas by mid-March, one was quite early in the mountains on 25 February, when seen by Norma and Bill Siebenheller in a flock of Killdeers between Rosman and Brevard, N.C.

PURPLE SANDPIPER: Probably a record total for the North Carolina Outer Banks was five birds at the base of the Oregon Inlet bridge on 28 December (John Fussell et al.).

LONG-BILLED DOWITCHER: Rather rare in southeastern North Carolina, 100+ Long-billeds were seen by Sam Cooper on the athletic fields at the University of North Carolina at Wilmington on 2 December.

PARASITIC JAEGER: Henry Haberyan observed a light-phase adult at Hatteras Inlet, N.C., on 2 February.

POMARINE JAEGER: An immature was noted by Lex Glover and party at Hatteras Inlet on 4 February.

LAUGHING GULL: One was late inland on 9 December in a field with Ring-billed and Herring gulls near Lake Glenwood, Greenville, N.C. (Howard Vainwright).

LITTLE GULL: The three reports for the winter were from the Outer Banks, with one at Bodie Island on 28 December (Ricky Davis), one at Nags Head on 3 February (Davis, Harry LeGrand), and two at Cape Hatteras on 11 March (Russ Tyndall).

COMMON BLACK-HEADED GULL: The only report for the winter was an adult seen at Morehead City from 15 to 18 December by John Fussell, and again on 14 January by Paul Saraceni.

HERRING GULL: Impressive numbers of gulls were found on inland lakes during the winter because of the very cold temperatures in December. Most notable was the count of 252 Herring Gulls on the Goldsboro CBC on 16 December (fide Eric Dean).

THAYER'S GULL: Derb Carter carefully studied a first-winter individual at Cape Hatteras point on 5 December. There are only six or seven previous records for North Carolina.

ICELAND GULL: An adult was a good find at a landfill near Newport, N.C., on 25 January (John Fussell).

LESSER BLACK-BACKED GULL: This species was found on most of the coastal North Carolina CBC's, with a peak of seven at Cape Hatteras on 27 December (fide Harry LeGrand). An adult was notable at the New Hanover County, N.C., landfill north of Wilmington on 27 January (Sam Cooper, Kevin Markham).

GLAUCOUS GULL: Always noteworthy in South Carolina, one was seen by Pete Laurie at Huntington Beach SP on 10 January. In addition to several reported on coastal North Carolina CBC's, one was present at the New Hanover County landfill on 27 January (Sam Cooper, Kevin Markham).

GLAUCOUS X HERRING GULL (HYBRID): Perhaps the first report of this hybrid in the Carolinas was one carefully studied by Mike Tove, John Wright, Harry LeGrand, and Ricky Davis at Cape Hatteras point on 26 and 27 December.

SANDWICH TERN: Rarely seen after late November, two were notable on 12 December at Cape Hatteras point (Todd Hass, Mark Crotteau), as was one on the Wilmington CBC on 30 December (fide Frances Needham).

RAZORBILL: The only report of an alcid for the winter was an injured, immature Razorbill picked up at Atlantic Beach, N.C., on 10 February. The bird died a few days later and was examined by John Fussell.

NORTHERN SAW-WHET OWL: One was heard calling during daylight by David Wright and Heathy Walker just east of Hatteras, N.C., on 3 February. The bird was calling from a thicket of cedars but was not seen despite a search of the area.

RUFOUS HUMMINGBIRD: A female present at a Greenville, S.C., feeder on 16 December, at the home of Muffy Wilkins, was induced to come into a greenhouse, where it stayed through the winter (fide Peter Worthington). Dorothy and Roger Foy banded and measured the bird to confirm its identification on 3 April.

ARCHILOCHUS HUMMINGBIRD (SP.?): At least seven individuals of this genus, none an adult male, were present in December at feeders at several locales in central Carteret County, N.C. (fide John Fussell). None were seen after the blizzard on 23 December.

RED-COCKADED WOODPECKER: The first records for Merchants Millpond SP, N.C., in 12 years occurred this winter, when Floyd Williams saw two on 25 January. He and Tim Lisk noted three birds along the park boundary on 1 February.

SCISSOR-TAILED FLYCATCHER: One of the few winter reports for the Carolinas was one seen on 5 December at the western end of Emerald Isle, N.C. (fide Henry Haberyan and Betsy Gallagher).

BARN SWALLOW: Ricky Davis observed one flying over Croatan Sound, N.C., on the very late date of 26 December.

COMMON RAVEN: Brian Cross and Rick Knight noted a large flock of 23 ravens at Roan Mountain, N.C., on 8 February. The species dispersed from its usual montane range into the western and central piedmont during December. Three were noted on the Tryon, N.C., CBC on 16 December (fide Simon Thompson); four were seen and heard on the Rockingham County, N.C., CBC on 17 December (fide Julia Gunn); two were seen on the Winston-Salem, N.C., CBC on 30 December (fide Marbry Hopkins); and one was seen on the Spartanburg, S.C., CBC on 30 December (fide Irvin Pitts). Most significant was the reporting of ravens nesting and rearing three young in a rock quarry near Reidsville, N.C., during the summer of 1989 (Julia Gunn), the easternmost site known for nesting by the species in the state.

BLACK-CAPPED CHICKADEE: Three were seen and one was heard singing at an elevation of 3600 feet along the Blue Ridge Parkway near Asheville, N.C., on 17 December. The observers were Norma and Bill Siebenheller. [The abundance of the species in the mountains in winter, away from known breeding sites, is poorly documented. In most cases, the reports contain either few or no details. Any reports of the species away from the Great Smoky Mountains National Park or the Blue Ridge Parkway from the Smokies to Devil's Courthouse, at any season, should contain considerable details. — HEL]

HOUSE WREN: One seen by Herb Hendrickson on 31 January north of Greensboro was rare for that area in midwinter.

BLUE-GRAY GNATCATCHER: Three seen on the Goldsboro CBC on 16 December was a good tally for the inner coastal plain at that season (fide Eric Dean).

ORANGE-CROWNED WARBLER: Noteworthy for the inner coastal plain, where a few individuals of this species possibly overwinter regularly, were one each at Goldsboro on 16 December (John Fussell) and near Fayetteville on 26 February (Philip Crutchfield).

CAPE MAY WARBLER: Todd Hass observed one, apparently an adult male, in his yard in Chapel Hill, N.C., from 16 January to 15 February.

BLACK-AND-WHITE WARBLER: One was notable on 5 January near Chapel Hill, as seen by Doug Shadwick.

OVENBIRD: Though observers have provided a number of winter records in coastal forests of North Carolina in recent years, one seen well by Merrill Lynch on the south side of Lake Phelps, N.C., on 30 December was quite unusual.

YELLOW-BREASTED CHAT: John Fussell saw one at his feeder in Morehead City during the blizzard on 23 and 24 December. However, he found the bird dead later in the winter.

PAINTED BUNTING: An adult male was seen on 22 December at a feeder in Buxton, N.C. (fide Marcia Lyons). Painted Buntings were known to have survived the 23 December blizzard at several other coastal feeders in that state. Lois Howland and Shirley Cuthrell saw at least three birds at their feeders in Beaufort all winter, and three more birds wintered near Queen's Creek in Onslow County (Gus Forte, fide John Fussell).

DICKCISSEL: Always notable in winter, one was seen on the Goldsboro CBC on 16 December by Ricky Davis and re-located later in the day by Eric Dean and others.

AMERICAN TREE SPARROW: One was seen by Bob Pilch at Pea Island on 28 December.

CLAY-COLORED SPARROW: Very rare in winter was one seen in northern Mecklenburg County on 10 and 11 December by David Wright, Taylor Piephoff, and others.

GRASSHOPPER SPARROW: Philip Crutchfield observed one on 31 January at a landfill at Fort Bragg in Cumberland County, N.C.

HENSLOW'S SPARROW: Seldom reported in the piedmont, particularly in winter, was one (and possibly two) seen by Peter Worthington on 31 January near Townville, S.C.

LE CONTE'S SPARROW: Always a good find was one seen within five feet in central Gates County, N.C., on 25 January by Floyd Williams.

LINCOLN'S SPARROW: Two were noted just northwest of Lake Phelps, N.C., on 30 December (Merrill Lynch); two were seen near Townville, S.C., on 20 January (Peter Worthington, Steve Cox, Vicky Cox); two were seen near Stokes, Pitt County, N.C., on 18 February (John Wright, Russ Tyndall); and one was seen in northern Mecklenburg County on 20 February (David Wright).

WHITE-CROWNED SPARROW: Evelyn Dabbs and Lex Glover noted at least one immature from 5 November through February near Mayesville, S.C. John Fussell observed another immature in his yard in Morehead City during January and February. This species is quite rare at these locations.

LAPLAND LONGSPUR: The species wintered at Bird Shoal near Beaufort, N.C., as five were present from 14 to 17 December (John Fussell, Sam Cooper) and three were there from 29 to 31 January (Fussell). The only winter report from South Carolina came from the Clemson area, where somewhat regular at one or two sites; two were on the CBC there on 16 December (fide Steve Wagner).

SNOW BUNTING: Unlike the longspur, this species is apparently not regular anywhere in the Carolinas from one winter to the next. However, eight on Currituck Banks, N.C., north of Corolla on 4 February (John Fussell, John Wright, Paula Wright, Russ Tyndall) were found in an area where there have been several reports in recent years. One at Round Bald on Roan Mountain from 3 January to 8 February (Rick Knight et al.) was also at a site of a handful of records in recent years.

BREWER'S BLACKBIRD: The sole report for the season was of four birds that wintered near Santee NWR, S.C., according to Tim Kalbach.

RED CROSSBILL: The winter reports were restricted to the mountains, with 30 seen on Roan Mountain on 29 December by Brian Cross and an undescribed number seen at Table Rock SP, S.C., in January by Scott Stegenza.

WHITE-WINGED CROSSBILL: One of the few records in recent years was an excellent count of 20 birds, with the above mentioned Red Crossbills, in the spruce-fir forest on Roan Mountain, as observed by Brian Cross on 29 December.

PINE SISKIN: There was a moderate flight into the Carolinas during the fall and winter. The best single-observer count was 100+ at Lex Glover's feeders at Lugoff, S.C., on 20 January. On the other hand, Evening Grosbeaks staged a poor flight into the region, with most CBC's either missing the species or recording them in just single digits.

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CBC

NOTES ON EGG-LAYING, INCUBATION, AND NESTLING PERIODS AND OF FOOD BROUGHT TO THE NEST BY FOUR SPECIES OF CAVITY-NESTING BIRDS

BILL E. DUYCK[1] & DOUGLAS B. McNAIR[2]

Since 1986, Duyck has studied and photographed cavity-nesting birds in the open woodland of his suburban yard at 628 m elevation near Bear Creek Road, Asheville, Buncombe County, North Carolina. He has documented the egg-laying, incubation, and nestling periods for 1–2 pairs each of four species. He usually first visits the nest around 0800 h; additional visits may be made later in the day. Estimates of the incubation period (measured from the time the last egg is laid to the time the last egg hatches) assume eggs are laid in early morning prior to the first visit of the day. Estimates of the nestling period must be more flexible, because hatching and fledging occur throughout the day. Fortunately, Duyck often was at the nest when those events occurred. He photographed food brought to the female by the male during the egg-laying and incubation periods, as well as food brought to the nestlings by both sexes during the nestling period. Details on nest box construction for each species are available from Duyck or from a video developed by the Cornell Laboratory of Ornithology.

Eastern Screech-Owl

One pair of red-phase Eastern Screech-Owls (*Otus asio*) nested in a man-made poplar (*Populus* sp.) cavity in 1986 and 1988. The cavity entrance is 4.1 m above ground.

In 1988, eggs were laid on 15 and 16 April. On 13 May, both eggs hatched synchronously. On 12 June, both young fledged and were photographed.

This female Eastern Screech-Owl laid her small clutch of two eggs at an interval of approximately one day, not 2–3 days (Sherman, 1911; Harrison, 1975). The incubation period was approximately 27 days. Fledging of the two young was also virtually synchronous; the nestling period was 30 days.

In both 1986 and 1988, the male screech-owl brought birds to the female inside the cavity during all three stages of the breeding cycle. Among other species, we have identified Eastern Meadowlark (*Sturnella magna*), Common Grackle (*Quiscalus quiscula*), American Goldfinch (*Carduelis tristis*), and a wren as prey.

In 1988, at least during the latter half of the nestling period, the pair took a variety of animals, many of which they probably obtained from several creeks 201–402 m from the nest site. Especially interesting prey were the Two-lined Salamander (*Eurycea bislineata*) (Figure 1) and an unidentified salamander (*Desmognathus* sp.). Also brought to the nest were many crayfish (see Craighead and Craighead, 1956), several freshwater shrimp, a bat, a moth, a beetle, and a spider.

Eastern Screech-Owls are opportunistic foragers, and birds may compose a large portion of their diet (Allen, 1924; Bent, 1938; and others). Salamanders are rarely, though regularly, captured as prey in some areas, including North Carolina (Stewart, 1969). Our pair of screech-owls favored foraging along

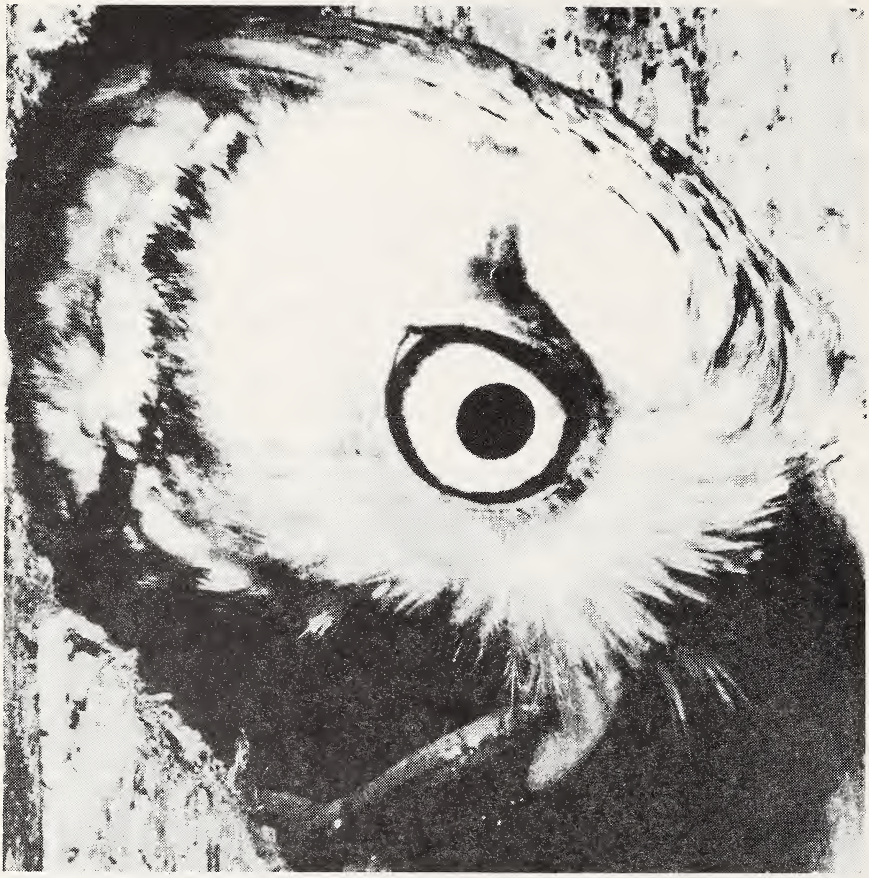

Figure 1. The male Eastern Screech-Owl brought a Two-lined Salamander to the nestlings (female absent) inside the nest cavity. Photo by B. Duyck.

streams, and we suspect salamanders may be more frequent prey than heretofore known in the southern Appalachian Mountains, the world center of salamander species diversity and abundance.

Red-bellied Woodpecker

In 1989, a pair of Red-bellied Woodpeckers (*Melanerpes carolinus*) nested in a section of a Black Locust (*Robinia pseudo-acacia*) mounted on a pole. On 17 May, the female laid the first egg and the clutch of four was completed on

20 May. The first egg hatched on the morning of 31 May. By the afternoon, another egg had hatched. By the morning of 1 June, a third egg had hatched. The remaining egg did not hatch. The incubation period for this pair of Red-bellied Woodpeckers was 12 days, or as much as one day less. In May 1990, the incubation period recorded was also 12 days.

The nestling period in 1989 could not be determined because the three nestlings died on 21 June of hematophagous mite parasitism (Figure 2). For the

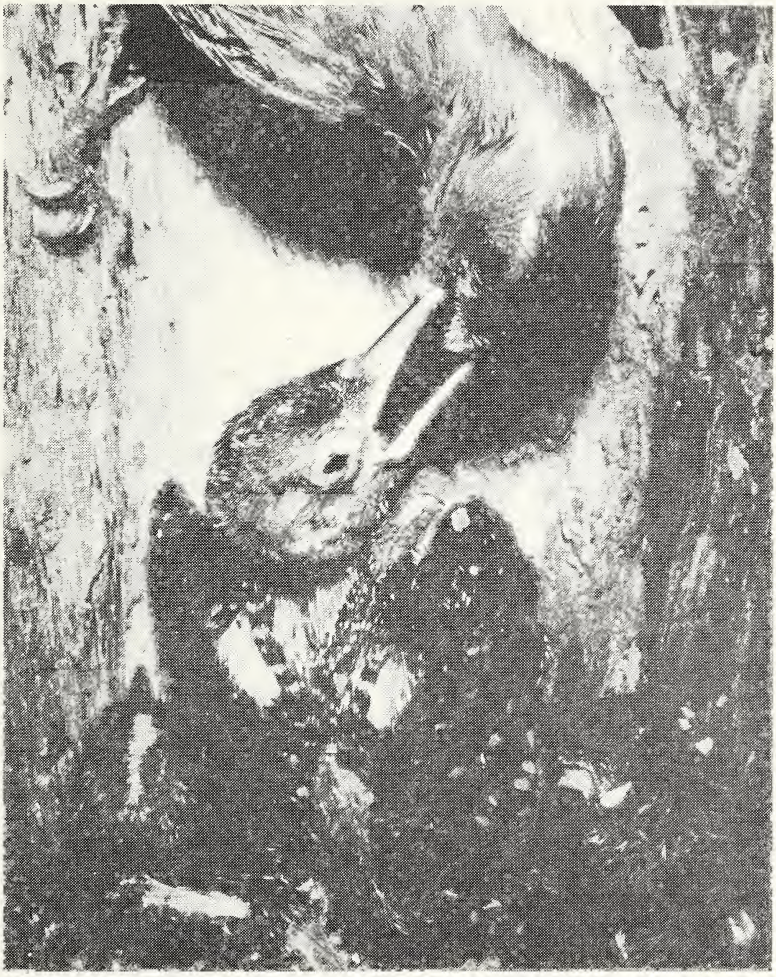

Figure 2. By 19 June, the three nestling Red-bellied Woodpeckers were dying as a result of hematophagous mite parasitism, despite frequent food provisioning by the adults. Photo by B. Duyck.

3–4 days prior to death, the young had been listless, despite frequent food provisioning by the adults. The mite infestation was apparent on 4 June, four days after hatching. Hippoboscid flies were also seen on the adults. In 1990, the young starved before fledging because screech-owls evicted the parents from the cavity.

The only specific foods we could identify between the adults' mandibles were many earwigs, bark beetles, caterpillars, and moths. Of 19 documented trips to the nest to feed the nestlings in 1989, the male made 18.

Northern Flicker

In 1989, a pair of Northern Flickers (*Colaptes auratus*) nested in the same poplar cavity used by breeding Eastern Screech-Owls in 1988. The female flicker completed laying an uninterrupted sequence of 8 eggs in early May (including one runt egg; color photo not reproduced here). The incubation period for this first clutch was 11 days. Soon after hatching, the nestlings were eaten by an unknown predator.

The female flicker laid the first egg of the second clutch in the early morning on 20 May, and she laid one egg a day until 23 May when the fourth egg was laid. She then skipped a day and laid a fifth egg in the early morning of 25 May. Five eggs were still in the nest on 27 May. On 28 May, a sixth egg was in the nest, though on 29 May, one of the eggs was missing. At this point, egg-laying in this nest was complete. On 6 June, three of the nestlings hatched in the morning and one more young was breaking out of the egg; the fifth egg did not hatch. Between the evening of 7 June and the morning of 9 June, the four nestlings starved to death, because the parents failed to return to the nest.

Northern Flickers normally lay one egg each day until the clutch is complete (Harrison, 1975; Jackson, 1977). It is highly unusual for interruption of egg-laying to occur twice in one clutch (we assume the two eggs laid after 23 May were laid by the same breeding female). Back-dating from hatching of the young on 6 June to 23 May at the conclusion of uninterrupted egg-laying gives an incubation period of 14 days + 3 h., within the reported range of 11-14 days (Jackson, 1977). If the two other eggs of this indeterminate egg-laying species had been laid without interruption, the incubation period would have been about 12 days. If incubation commences with the laying of the penultimate egg, which in our case was laid on 25 May, then the incubation period would still have been about 12 days, rather than the unacceptably short 9-day period between laying of the last egg on 28 May and hatching on 6 June.

We are uncertain what caused the female to interrupt laying of the second clutch twice in late May. We have no evidence that a second female laid eggs in the poplar cavity. Northern Flickers and Eastern Screech-Owls alternated nesting in this cavity for four years, from 1986 to 1989. Duyck has observed both flickers and screech-owls prospecting for a nest-site at the entrance from 1986 to 1988 while the other species was inside the cavity during the egg-laying or the incubation stage of the breeding cycle. On the evening of 28 May 1989, he heard a commotion at the nest cavity, and soon thereafter saw a screech-owl in the backyard. An egg was missing on the morning of 29 May; it may have been damaged during the commotion and removed by a flicker. We do not believe a flicker removed an undamaged egg in response to nest disturbance (Baker, 1975), because the pair remained to breed and no more eggs disappeared. We believe, though without certain evidence, that the screech-owls may have killed one or both nesting flickers, or otherwise forced the pair to abandon the nest between the evening of 7 June and the morning of 9 June.

Screech-owls prey on flickers at the nest (Landin, 1978) and are known to displace species as large as Pileated Woodpeckers (*Dryocopus pileatus*) from their nest cavity (Connor, 1973). In addition, screech-owls interfered with nesting Red-bellied Woodpeckers and White-breasted Nuthatches in 1990 causing adults of both species to abandon nesting attempts during the nestling stage. We suspect that disturbance by screech-owls during egg-laying stressed the female flicker, causing her to interrupt egg-laying twice because the owls were contesting the flickers for occupation of this nest-site.

White-breasted Nuthatch

A pair of White-breasted Nuthatches (*Sitta carolinensis*) nested inside an aged 46.5 cm-long section of a cherry (*Prunus serotina*) snag in 1989. The bottom of the sectioned piece is 1 m above ground. The cavity entrance is 4.4 cm. The longest length inside the cavity is 30 cm. The inside diameter is 11.5 cm.

On 7 April 1989, the pair of nuthatches evicted a pair of Carolina Chickadees (*Parus carolinensis*) from this nest-site, removed their moss from the cavity, and caulked it outside on the nest box. The nuthatches relined the cavity with their own nest material of straw, pieces of bark, plant stems, plant down, and masses of fur. Earlier that morning, the pair had examined at least two other cavities in the yard, but rejected them. Both sexes engaged in nest-building; in addition, the male fed the female while she was building. Only the male had black head feathers. The pair continued nest-building until a few days after the first egg was laid.

The first egg was laid on the morning of 12 April. Three eggs were in the nest on the morning of 14 April. One egg was accidentally destroyed, which may have caused the female to interrupt egg-laying for one day, as the fourth egg was not laid until the morning of 16 April. The clutch was completed on the morning of 18 April, when the sixth egg was laid (five eggs now in the nest). Three eggs hatched during the morning of 3 May. The fourth egg hatched between 1200 h on 3 May and 0800 h on 4 May. The fifth egg did not hatch. The estimated incubation period was 15 days + 11 h (or 15 days, if measured to the time the first three young hatched).

In 1990, a pair of White-breasted Nuthatches nested inside another cherry snag, with a cavity entrance hole of 3.3 cm diameter. Seven eggs were laid during the first nesting attempt in mid-March but the incubation period was not determined. The first egg of the renesting attempt was laid on the morning of 14 April and the clutch of 6 was completed on 19 April. On 3 May, the eggs were still unhatched. On 4 May, all 6 eggs had hatched and the adults were feeding young. The estimated incubation period was 15 days.

Both estimates of the incubation period for the White-breasted Nuthatch are considerably longer than the questionable 12 days given by Allen (1929) and quoted in Tyler (1948a). Allen also stated that both sexes incubate. Butts (in Tyler, 1948a) stated the male White-breasted Nuthatch does not incubate. Although Sheppard and Klimkiewicz (1976; and pers. comm.) said "nuthatch males do incubate but do not develop a full edematous brood patch," they were unable to provide a reference for their statement. Duyck did not see the male White-breasted Nuthatch incubate (or brood) at Asheville, N. C., nor are we aware of a source with published data that states males may incubate in any of the three other nuthatch species in North America. We believe incubation by male White-breasted Nuthatches needs to be confirmed, as well as the incubation period of 12 days, because we are skeptical that Allen's account is accurate. Perhaps Allen mistakenly attributed defensive behavior at the nest by the male White-breasted Nuthatch for incubation (see Hailman and Woolfenden, 1985).

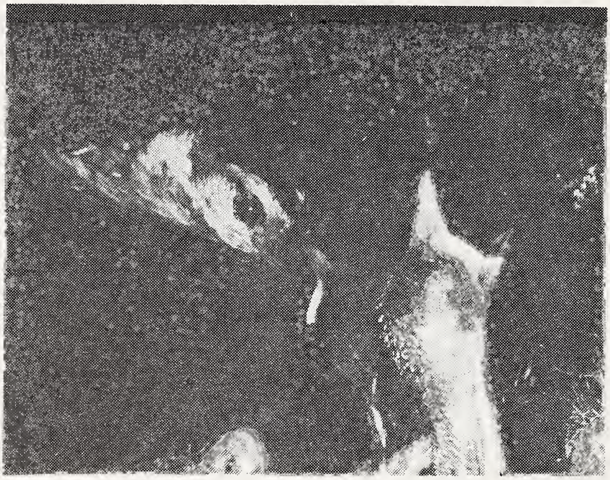

Figure 3. On 13 May, the eyes of the nestling White-breasted Nuthatches were half-open. Compare the eye of the nestling on the right with the eye of the adult nuthatch. Photo by B. Duyck.

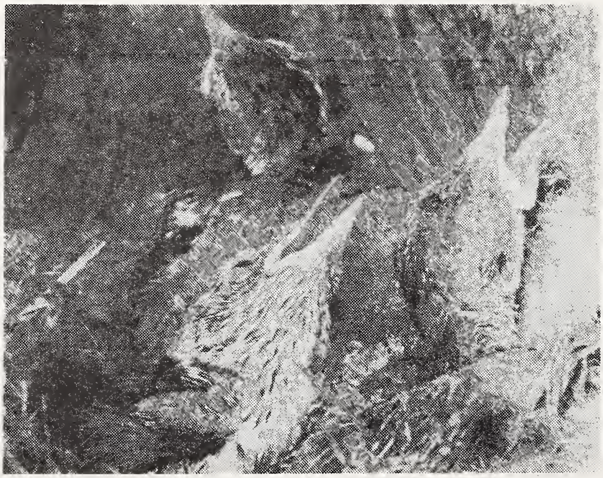

Figure 4. On 17 May, the nestlings began preening while many body contour, wing, and tail feathers were still in the pin stage. Photo by B. Duyck.

On the day the nestlings hatched in 1989, the female brooded the young and fed them, chiefly with food provided by the male. Nestlings were photographed inside the nest cavity on the day of hatching and next on 9 May (day 7). Photographs were taken daily from 9 May to the completion of the nestling period (the nest and slides prepared from the photographs have been archived at the Laboratory of Ornithology, Cornell University).

On 9 May, the nestlings' eyes were closed. On 13 May, their eyes were half-open (Figure 3). On 16 May, the nestlings began exercising their wings. On 17 May, they frequently exercised their wings; they also began preening their feathers, though many body contour, wing, and tail feathers were still in the pin stage (Figure 4). For the first time, the female did not remain overnight in the nest to brood the young on 17 May, nor did she do so again during the nesting cycle. On 22 May, the nestlings still exercised their wings and preened their feathers. Some down feathers were still attached to the tip of the shaft of emerging feathers, especially in the region of the head and neck (Figure 5). On day 20, all young walked around inside the nest cavity for the first time. On 23 and 24 May, both adults were still feeding the young (3 males; 1 female) and carrying the fecal sacs away. At 1010 h on 25 May, the adults were still engaged in the same behavior. At 1440 h, one nestling finally fledged. At 1450 h, the last nestling fledged, and the adults busily fed the young outside the nest. Thirty-two days later. the adults were still feeding suet and sunflower seeds to at least three of the fledglings.

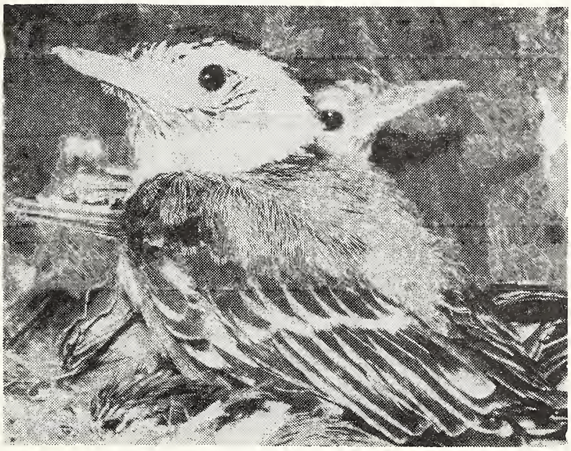

Figure 5. On 22 May, the nestlings began walking around inside the nest. Some down feathers were still attached to the tip of the shaft of emerging feathers, in the region of the head and neck. Photo by B. Duyck.

If calculated from the time the last egg hatched, the nestling period for this brood of White-breasted Nuthatches is 21 days ± 11 h. If calculated from the time the first three eggs hatched, the nestling period is 22 days + 7 h.. We are unaware of any source with published data that documents the nestling period of the White-breasted Nuthatch. Typical nestling periods for the Red-breasted (*S. canadensis*), Pygmy (*S. pygmaea*), and Brown-headed (*S. pusilla*) nuthatches range from 18–21 days (Tyler, 1948a, 1948b; Harrison, 1978; McNair, 1984), though estimates for the Red-breasted Nuthatch are claimed to be as low as 14 days (Tyler, 1948b). However, we believe Tyler's low estimate needs to be confirmed.

Our brief description of the gross morphological and behavioral development of the four young White-breasted Nuthatches cannot be compared with other sources because none are adequate. Therefore, we are uncertain that either of our calculations of the nestling period is long for the White-breasted Nuthatch. Based on our data, we believe the female discontinued brooding the young after day 14 (after the midpoint of the nestling period), because the young had attained thermogenic homeothermy (Dunn, 1975; O"Connor, 1984).

During the nestling stage of the breeding cycle in 1989, both sexes fed the young (30 documented trips; M = 18, F = 12). Up until day 11, the male primarily brought food to the nest. After day 14, both sexes fed the young about equally. Food items brought to the nest during the 30 trips were winged insects (n = 8), caterpillars (n = 5), grubs (n = 4), moths (n = 3), a spider (n = 1), and unidentified prey (n = 9).

Acknowledgments: We thank all who assisted us with preparation of our paper. R. C. Bruce confirmed identification of the Two-lined Salamander. R. N. Conner, L. Kilham, C. A. Long, E. F. Potter, J. R. Walters, and an anonymous individual reviewed the manuscript. We also thank the Laboratory of Ornithology, Cornell University, for archiving the 1989 nest of the White-breasted Nuthatch, the senior author's slides of breeding behavior at that nest, and for producing a video on cavity-nesting birds that breed in the senior author's yard.

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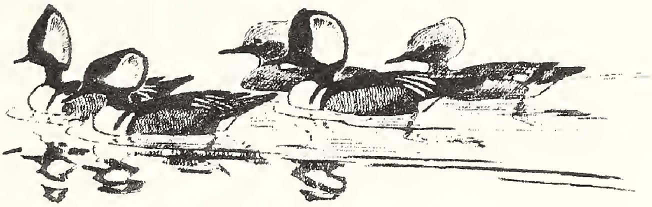

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General Field Notes

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Blue Jay Captures Bat

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About 1930 h on 19 June 1988, I saw a Blue Jay (*Cyanocitta cristata*) fall to the ground from a tree in my wooded yard at Southern Shores in northeastern Dare County, N. C. Something appeared to be clinging to the bird as it fell; and once the bird reached the ground, it began jabbing something with its bill. As I approached the site of the activity, the jay flew away, leaving behind a bat. When I returned to the house and reported that the "something" was a bat, Eloise Potter suggested that I collect the specimen for the North Carolina State Museum of Natural Sciences.

Because the jay had resumed its attack on the bat, Ms Potter and I assumed that the victim would be dead by the time we reached it. That was not the case. The bat was still lying on its back in a defensive position, with its wings and tail arched over its underparts. The wings were black or very dark brown with pink lines marking the location of the bones. The head of the bat was covered with golden yellow fur except where pink skin was visible on the snout. In the dim light the ears were not clearly seen; we believe that short, rounded ears gave the bat the appearance of having a very wide face. The dorsal surface of the interfemoral membrane was covered with short, felt-like, golden yellow fur. The grayish breast and belly contrasted with the yellow head and interfemoral membrane. Although no blood was seen, several dark spots on the belly appeared to be puncture wounds. The animal was alert and moved its mouth, but there was no audible sound. The bat made no attempt to escape, not even when I touched it with a stick.

Realizing that it would not be safe to pick up the injured bat with our bare hands, we returned to the house to obtain implements for collecting the specimen. When I again reached the place where the bat had been lying, I was unable to find it. I do not know whether it flew away, crawled under some leaves, or was carried off by the Blue Jay or some other predator.

Ms. Potter and I immediately compared our impressions of the animal's size and coloration with the bat accounts and photographs in Mammals of the Carolinas, Virginia, and Maryland (Webster, Parnell, and Biggs, University of North Carolina Press, 1985). We tentatively identified it as an adult female Red Bat (*Lasiurus borealis*).

Ms. Potter discussed the observation with Mary Kay Clark, curator of mammals at the N. S. State Museum of Natural Sciences. Ms. Clark indicated that the above description does not completely eliminate similar species, though the furred tail and inconspicuous ears, the woodland habitat, and the coastal locality are consistent with the general appearance, the tree-roosting behavior, and the statewide distribution of *L. borealis*. After examining specimens of Red Bats in the museum's mammal collection, Potter was confident that we had seen a female of that species.

A. C. Bent's Life Histories of North American Jays, Crows and Titmice, Part I (U. S. National Museum Bulletin 191, 1946), indicates that jays sometimes consume small mammals such as mice and shrews, but it does not mention bats. However, Webster et al. (1985) list "opossums, cats, and various species of hawks and owls" as predators of the Red Bat and add that Blue Jays "are known to consume this bat, especially young individuals."

My observation gives some idea of the struggle that ensues when a jay captures a bat large enough to resist the attack.

Specimen records of the Great Cormorant from North Carolina

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On 1 June 1990 I found an injured Great Cormorant (*Phalacrocorax carbo*) near the high tide line on North Topsail Beach (formerly West Onslow Beach), Onslow County, North Carolina. The bird was about 50 m S of the remains of the New River Inlet Pier, *ca.* 2 km S of New River Inlet. The bird died two hours later and was salvaged as a study skin (USNM # 596863).

The cormorant was an immature female with an ovary 37 x 10 mm, and she was undergoing feather molt. On both wings, primaries #1-6 were new, #7 was one-third grown, and #8-11 were old. Right rectrices #2,4,5, and 6 were one-half grown; #1,3, and 7 were new. Left rectrices #2 and 4 were three-fourths grown; #5 and 6 were breaking sheaths; #1,3, and 7 were new. She was undergoing light to moderate body and neck molt.

Great Cormorants have been sighted with increasing frequency in North Carolina since first discovered here in 1970 (Teulings, Am. Birds 25:562-567, 1971). Photographic verification of the presence of this species in North Carolina was first provided in 1973 by Grant and Grant (Chat 39:39-40, 1975).

I frequently observed Great Cormorants and Double-crested Cormorants (*P. auritus*) perching on the pilings of the New River Inlet Pier during the winter, spring, and summer of 1990. Up to seven Great Cormorants were present here on 8 May 1990 and two were present as late as 4 July 1990.

Three additional Great Cormorant specimens from North Carolina were collected on 28 March 1986 near Southport, Brunswick County, N. C., by James F. Parnell and David S. Lee. A female (NCSM 11811) with heavy body fat and undergoing molt weighed 7 pounds 2 ounces. A 9-pound male (NCSM 11812) with testes measuring 41 x 11 mm (left) and 31 x 12 mm (right), had heavy body fat and was undergoing molt at the time of collection. The third specimen was an adult male that was deposited in the University of North Carolina at Wilmington collection (UNCW B951).

Acknowledgements: I thank M. Ralph Browning of the National Museum of Natural History for verifying species identification and for cataloging the specimen, Mark Shields and David S. Lee for reviewing this manuscript, and D. S. Lee and James F. Parnell for providing data from specimens in the collections at the N. C. State Museum and UNC at Wilmington.

Inland Records of Brant in the Carolinas and Observations of Kleptoparasitic Behavior

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On seven dates from 1-29 December 1989, I watched a light-bellied Brant (*Branta bernicla hrota*) feed among a flock of American Coots (*Fulica americana*) at Lake Paul Wallace, Bennettsville, Marlboro County, South Carolina. The blackish head, neck, and breast, fairly evenly barred sides, and evenly barred mantle and wing coverts with grayish or grayish-buff margins indicated the bird was in basic plumage (see Palmer, 1976, illus., pp. 247). The small incomplete whitish necklace on each side of the neck below the throat was present though not overly distinct. The bird swam and flew well and was apparently uninjured. I discovered the Brant on 1 December when I did not observe any visible migration in the area; the Brant probably arrived between 17 and 30 November when a series of cold fronts passed through the region. On 29 December, the Brant was present at Lake Wallace which was almost frozen over with only one small open area where all the waterbirds congregated. Two days later, the entire lake had frozen over, and the Brant was gone, though a flock of 40 feral Canada Geese (*B. canadensis*) remained.

On 22 January 1990, the same Brant, with the necklaces a bit more distinct, was again present at Lake Wallace with a flock of 450 coots. The flock of coots returned on about 15-16 January (O. Driggers, pers. comm.), when the Brant probably returned with them. The coots' whereabouts since 29 December is unknown, and except for a few on the Pee Dee River, they were not known to be present in Marlboro County after late December until 15-16 January.

Post and Gauthreaux (1989) correctly eliminated several reputed records of Brant in November 1974 near Clemson, S.C. (Am. Birds 29:41, 1975); these records are a misprint (H. E. LeGrand, Jr., pers. comm.). Thus, the Brant at Lake Wallace is the first documented inland record for South Carolina. On the coast, the Brant is very rare from late fall to early spring (Post and Gauthreaux, 1989).

North Carolina has only two inland records of the Brant. I watched a solitary Brant rest for 30 min in corn field stubble near Ross Pond, Anson County, within the Pee Dee NWR on 8 December 1979. The bird was seen independently by L. P. Hartis and several other observers from 7 to 11 December. The bird was in basic plumage, using the same criteria as above; the incomplete white necklaces were indistinct. The Brant appeared to be in good health, but was very tired, and probably arrived the night of 6-7 December, following a strong cold front from the NW.

On 14 November 1983, B. and M. Wagner and M. A. Foster saw an immature (= juvenile) Brant at Jordan Lake, also in the Piedmont, for the only other inland N. C. record (Chat 48:53, 1984). The bird was identified as an immature on the basis of the lack of white necklaces. The head and neck were described as black or deep brown, the upperparts as slaty-black or brown. The observers were uncertain of the color on the foreparts and upperparts and did not describe the pattern of the upperparts. If present, the crescent necklaces may be indistinct and not readily seen at 100 m, the distance the bird was from the observers. Consequently, I believe that further documentation of the plumage of this Brant is necessary to conclude that the bird was a juvenile.

The Brant at Marlboro County, S.C., usually fed among a single large flock of coots, ranging in size from 100 to 600 birds. I watched the Brant feed for a total of 240 min at a distance of usually less than 20 m. The Brant frequently kleptoparasitized the coots, i.e., stealing already procured food (Brockmann and Barnard, 1979), robbing many of abundant submerged green algae which the coots brought up to the surface in beakfulls (N > 600 observations). The Brant cruised among the coots and swam directly towards coots after they emerged with food, or waited over a briefly submerged coot until it surfaced, to rob it of food. As coots must surface before eating food, kleptoparasitism was an easy task. Usually, the Brant stole only a portion and the coot retained some of the algae. The Brant also used the coots as "beaters", following them to good foraging areas, and then displacing them. All kleptoparasitic strategies were very successful. Much less frequent were non-parasitic foraging methods, dipping the bill underneath the water or up-ending (submergence of head and neck) to feed on the same algae. The Brant spent almost all of its time feeding and preened occasionally.

Many of the coots did not attempt to protect their food from the Brant. Some individuals attempted to reclaim stolen food, but were unsuccessful. The Brant called only three times, a low guttural "cruk", during agonistic encounters with coots. Once, the Brant called and pecked with a partly open bill at a coot which attempted to reclaim part of its stolen food. The other times, the Brant gave the same call when it used a lowered-head threat when it displaced single coots reluctant to move from a favored foraging area.

On 22-23 and 29 December, when the lake was partly or mostly frozen over, many other waterfowl joined the coots to form a concentrated flock. The Brant then rarely attempted to kleptoparasitize both sexes of the Ring-necked Ducks (*Aythya collaris*) that were feeding on the algae; it was successful only once. The Brant did not attempt to kleptoparasitize any other species of waterfowl. The Brant never associated with the Canada Geese present.

Brockmann and Barnard (1979) did not list the Brant as a known kleptoparasite. Einarsen (1965; pp. 31) forcefully states that Brant may closely attend scaups, scoters, and goldeneyes foraging for shellfish, to feed on fragments of eelgrass and sea lettuce, when inadvertently brought to the surface by the other species. H. Boyd (*in litt.*) has observed unambiguous reciprocal kleptoparasitism between the dark-bellied Brant (*B. b. bernicla*) and the Eurasian Wigeon (*Anas penelope*) in Norfolk, England, where each species pirated algae from the other. Brant may also follow oyster dredges that pull up eelgrass and other plants (Palmer, 1976).

The large concentration of coots at Lake Wallace and a visible and abundant food supply of green algae, the Brant's favorite food, allowed the Brant to have an extended stay at Lake Wallace, S. C., which included a return to the site after an absence of about three weeks. In the two extralimital N. C. localities, where coots were absent or scarce, kleptoparasitism could not be used as a successful foraging strategy.

Acknowledgments. I thank H. Boyd, D. M. Forsythe, H. T. Hendrickson, H. E. LeGrand, Jr., and L. Moseley for reviewing this note. Records in the Southern Atlantic Coast Region of *American Birds* are not listed in the Literature Cited section.

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BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.
(All dates 1990 unless otherwise indicated)

PIED-BILLED GREBE: A rare breeding record for the Fall Line region was an adult with four chicks seen by Lex Glover at a pasture pond at Lugoff, S.C., on 31 May.

EARED GREBE: The bird that wintered at Cape Hatteras, N.C., was last noted on 5 March (Greg Justice).

SOOTY SHEARWATER: Quite a surprise away from the ocean was one seen on the water and in flight at a bay along the US 64 causeway near Nags Head, N.C., on 26 May (Harry LeGrand, Jeremy Nance, and others). Earlier on that day, LeGrand, Nance, and 20+ other observers saw 38 Sooty, 94 Cory's, three Greater, and 12 Audubon's shearwaters on a pelagic trip off of Oregon Inlet, N.C.

BLACK-CAPPED PETREL: Of the 11 petrels tallied on a pelagic trip off Oregon Inlet on 26 May (Harry LeGrand, Haven Wiley, et al.), two were darker birds that appeared to lack any white on the rump and nape.

LEACH'S STORM-PETREL: The pelagic trip off Oregon Inlet recorded a good total of six Leach's on 26 May (Harry LeGrand party).

BAND-RUMPED STORM-PETREL: One was slightly early off Oregon Inlet on 26 May; a total of 221 Wilson's Storm-Petrels and the above Leach's Storm-Petrels were also noted (Harry LeGrand party).

WHITE-TAILED TROPICBIRD: A good find, and somewhat early, was an immature or sub-adult bird seen following a head boat for about a minute off Oregon Inlet on 26 May by Harry LeGrand, Brian Patteson, and others.

AMERICAN WHITE PELICAN: One was present at Pea Island NWR, N.C., in late spring, being noted on 24 May by Kevin Hennings and on 27 May by Harry LeGrand and others.

GREAT CORMORANT: John Fussell observed one on 2 March at Little River Inlet, S.C. Gilbert Grant noted the species at New River Inlet, N.C., from 1 May to 14 June, with seven present on 8 May. Grant found a dead bird there on 1 June.

ANHINGA: Always rare in the piedmont, one was seen in northern York County, S.C., near Rock Hill on 22 April by Kevin Hennings.

LEAST BITTERN: David Wright and Heathy Walker saw and heard several in southern Mecklenburg County, N.C., on 5 May.

GREAT EGRET: Notable in the mountains, especially in spring, was one seen by Ruth Young at Hendersonville, N.C., on 13 May.

SNOWY EGRET: Lex Glover saw eight at a pasture pond on 30 April near Boykin, S.C., plus another at nearby Boykin Mill Pond on 10 May. Perhaps the species is nesting in the large heronry at this mill pond. An excellent spring count inland in North Carolina was five birds, as noted by Eric Dean near Goldsboro on 28 April.

TRICOLORED HERON: Inland North Carolina records for the spring were from Pitt County on 2 and 25 April (John Wright) and from Wayne County on 28 April (Eric Dean) and 3 May (Gene Howe).

BLACK-CROWNED NIGHT-HERON: One was seen on 5 May at Salem Lake, Forsyth County, N.C., by Zack Bynum, Jay Wilhelmi, and others. Another migrant was seen near Goldsboro on 19 April by Eric Dean.

GLOSSY IBIS: Notable inland at any season, single birds were seen in North Carolina near Greenville on 14 April (Russ Tyndall, Veronica Pantelidis), near Morrisville on 17 April (Robert Hader), and at Goldsboro on 16 May (Eric Dean).

WOOD STORK: Lex Glover saw an adult, presumably a non-breeder, at the heronry at Boykin, S.C., on 10 May.

BRANT: Six birds still remained into spring in South Carolina, following the heavy flight during the previous winter, as observed by Dennis Forsythe on 17 March at Mount Pleasant.

GADWALL: John Fussell saw four pairs, believed to be nesting locally, at the southern edge of the breeding range along the north shore of Cedar Island, N.C., in May.

GREATER SCAUP: The only inland report for the spring was six females carefully studied at Santee NWR, S.C., on 7 April (Lex Glover, Roger McNeill).

LESSER SCAUP: Paul Sykes and Joan Sykes observed a large raft of scaups, estimated at 20,000, near the north jetty at the Savannah River, S.C., on 25 March.

HARLEQUIN DUCK: A female was seen in flight at Cape Hatteras point, N.C., on 19 March by Rich Boyd and Wade Fuller.

OLDSQUAW: The female seen on Lake Murray at Dreher Island SP, S.C., in February was last noted on 15 March by Lex Glover and Roger McNeill.

COMMON GOLDENEYE: Quite late in departing was one observed by Heathy Walker and Harriett Whitsett at Pineville, N.C., on 4 April.

BUFFLEHEAD: A female was several weeks late on a waste pond in southeastern Chatham County, N.C., on 6 May (Harry LeGrand, Steve Hall).

HOODED MERGANSER: This species nests on rare occasions in the Carolinas; thus, of note was a female seen with four downy young on 28 April by Peter Worthington at Savannah NWR, S.C.

OSPREY: Herb Hendrickson reported that two pairs re-occupied nests at Lake Townsend near Greensboro, N.C., this spring; however, two new nests built at that site had to be moved because of threats to power service.

AMERICAN SWALLOW-TAILED KITE: Surprisingly, the only record for North Carolina this spring was one seen by Joe Lassiter a mile north of Sanderling, Dare County, on 7 May.

MISSISSIPPI KITE: Out of range were single birds seen on 5 May near Castle Hayne, N.C. (Eric Dean) and on 11 May near Swan Quarter, N.C. (Sam Cooper).

COOPER'S HAWK: Lex Glover saw one on 29 May at Westville, S.C.; perhaps the bird was a local breeder.

BROAD-WINGED HAWK: Extremely early was one heard calling on 9 March between Table Rock SP and Caesars Head SP, S.C., by Lex Glover. Rare in migration in the lower coastal plain were two seen on 11 May by Greg Massey and Jeremy Nance near Wallace, N.C.

MERLIN: Lex Glover saw one on 31 March at Lugoff, S.C., for the only inland spring report.

PEREGRINE FALCON: This species is a rather late spring migrant, generally passing through the Carolinas from late April to mid-May. Spring sightings were of single birds on 5 May at a Voice of America site west of Greenville, N.C. (Russ Tyndall) and on 20 May near the Cedar Island, N.C., ferry terminal (John Fussell, Deb Squires).

YELLOW RAIL: A completely surprising sighting was made by Helene Tetrault on 20 April along the shore of Singletary Lake, N.C. One flushed from a marsh as she walked along a boardwalk over the marsh; she noticed "a smallish streaked yellow brown bird with big white patches on the rear of the wings".

CLAPPER RAIL: Paul Hart observed one in flight and on the ground at the Lillington, N.C., sewage ponds on 17 April for a very rare inland report. The "relatively large rail had fairly drab gray coloration with just a hint of brown", according to his description.

SANDHILL CRANE: One of the few records for the Outer Banks was a crane soaring with gulls over Cape Hatteras point on 9 April, as noted by Allan Vogt.

LESSER GOLDEN-PLOVER: Robin Carter, Simon Thompson, and others saw one at the Beaufort, S.C., airport on 29 April.

WILSON'S PLOVER: An early migrant was a plover at the southern end of Masonboro Island, N.C., on 5 March (John Fussell).

AMERICAN OYSTERCATCHER: Seldom reported inland in the Carolinas, an oystercatcher was seen flying along the Tar River at Greenville, N.C., on 16 May by Russ Tyndall.

BLACK-NECKED STILT: One was most unusual at a pond west of Goldsboro, N.C., on 3 May (Gene Howe, Eric Dean). What must have been the same bird was one seen a few miles away from 23 to 24 May by Dean.

UPLAND SANDPIPER: The better spring counts for this scarce migrant were four near Goldsboro on 3 April (Eric Dean) and three near Pendleton, S.C., on 20 April (Lex Glover).

LONG-BILLED CURLEW: The individual that wintered at Fort Fisher, N.C., was last reported on 4 March, by John Fussell.

SANDERLING: The only spring report inland was one bird seen by Eric Dean at Goldsboro from 21 to 24 May.

SEMIPALMATED SANDPIPER: Eric Dean reported the species at Goldsboro from 3 to 24 May with a peak of 90+, an excellent inland total, on 23 May. In comparison, the earlier-migrating Least Sandpiper peaked at 100+ there on 3 May (Dean).

WESTERN SANDPIPER: Jeremy Nance observed a late individual on 15 May at Eagle Island near Wilmington, N.C. [The departure dates for this species are poorly known in the Carolinas. There appears to be practically no northbound migration of the species up the Atlantic Coast in spring; rather, wintering birds are presumed to fly directly northwestward across the continent toward their breeding grounds in Alaska. Westerns are believed to be rather rare in the Carolinas after early May. -- HEL]

WHITE-RUMPED SANDPIPER: Eric Dean observed this species at Goldsboro from 10 to 24 May, with an excellent inland count of 17 on 21 May. Single birds inland (all in North Carolina) were near Winston-Salem on 5 May (Zack Bynum et al.), southeastern Chatham County on 6 May (Harry

LeGrand et al.), Greensboro on 25 May (Herb Hendrickson), and near Pactolus in Pitt County on 26 May (John Wright). The best coastal report was 26 White-rumpeds at Eagle Island, N.C., on 22 May (Greg Massey).

DUNLIN: Inland migrants, generally rare in spring, were one at Lake Crabtree near Morrisville, N.C., from 7 to 11 April (Robert Hader) and two at Goldsboro on 8 April, with one still present to 24 May (Eric Dean).

CURLEW SANDPIPER: A good find was one in breeding plumage at Eagle Island on 9 May, as observed by Jeremy Nance and Greg Massey.

RUFF: One in breeding plumage was noted from 16 to 19 May at Eagle Island by Jeremy Nance, Sam Cooper, and others. James Parnell saw two Ruffs at that site on 18 May, a most unusual observation, as this species is almost always found singly in the Carolinas.

SHORT-BILLED DOWITCHER: Eric Dean saw two at Goldsboro on 3 May, the only inland report for the spring season.

LONG-BILLED DOWITCHER: Rare and late for South Carolina was one seen and heard on 28 April at Bear Island WMA by Lex Glover.

WILSON'S PHALAROPE: Two were found at the Savannah spoil area, Jasper County, S.C., on 28 April (Harry LeGrand, Ricky Davis, et al.), and another was seen at Huntington Beach SP, S.C., on 26 May (Kevin Hennings). The only North Carolina report for the spring was a female at Goldsboro on 18 May (Eric Dean).

RED-NECKED PHALAROPE: An injured bird picked up on a road at Emerald Isle, N.C., on 13 May was taken to a local animal shelter; its identity was confirmed by John Fussell.

PARASITIC JAEGER: Five birds, along with eight Pomarine Jaegers, were seen off Oregon Inlet on 26 May by Harry LeGrand and party. Dennis Forsythe observed single Parasitic and Pomarine jaegers off Charleston, S.C., on 27 April.

LAUGHING GULL: There was a remarkable influx of this species to inland lakes on 28 April. On this date, Eric Dean saw eight at Goldsboro, and one was seen in Pitt County, N.C., by John Wright. [Many were seen inland in Georgia on 28 April, also, to further corroborate that the influx was not just coincidental. -- HEL] One was noted on 29 April on Lake Wylie, S.C., by Kevin Hennings. Another small fallout occurred about 9-10 May, when two were at Jordan Lake on the former date (Paul Saraceni) and singles were seen on the latter date at Jordan Lake (Saraceni), at Charlotte (Heathy Walker), and at Lugoff, S.C. (Lex Glover).

LESSER BLACK-BACKED GULL: John Fussell saw adults on 1 March at Holden Beach, N.C., on 3 March at Long Beach, N.C., and on 11 March on Core Banks, opposite Davis, N.C. He also saw a first-winter bird at a landfill near Newport, N.C., on the late date of 4 May.

GLAUCOUS GULL: Gilbert Grant observed an immature at New River Inlet, N.C., from 22 April to 14 June. Other birds, described as being in first-winter plumage, were at Beaufort, N.C., on 24 March (David Wright, Taylor Piephoff) and at Cedar Island, N.C., on 7 May (John Fussell, Jeannie Kraus).

SABINE'S GULL: Apparently regular, though rare, as a northbound migrant off the coast in late May, the species was encountered on a pelagic trip off

Oregon Inlet on 26 May. Harry LeGrand, Brian Patteson, and party saw one in breeding plumage migrating with several Common Terns.

ARCTIC TERN: Harry LeGrand and Ricky Davis saw one in breeding plumage on a pelagic trip 65 miles off of Beaufort Inlet, N.C., on 19 May. A group of six other terns seen on this trip were also believed to have been Arctics.

FORSTER'S TERN: One was uncommon at Lake Crabtree near Morrisville, N.C., on 21 April (Robert Hader).

COMMON NIGHTHAWK: Roger McNeill saw and heard an early nighthawk on 31 March at Mount Pleasant, S.C.

WHIP-POOR-WILL: Although this species regularly arrives on its breeding grounds in the Carolinas by late March, single birds were heard calling on 12 March at both Polk County, N.C. (Simon Thompson) and Raven Rock SP, N.C. (Paul Hart).

ALDER FLYCATCHER: Rick Knight reported that the first bird at Roan Mountain, N.C., was noted on 14 May. This is perhaps the latest species to arrive on its breeding grounds in that state.

HORNED LARK: Lex Glover and Evelyn Dabbs saw a juvenile on 4 April, plus several family groups on 6 April, in the Mayesville, S.C., area. Glover also noted two singing males on 29 May at the Kershaw County, S.C., airport at Camden.

BANK SWALLOW: Paul Saraceni saw 12 Banks on 28 May, and 25 on 30 May, at Jordan Lake, N.C. These were presumably late migrants, as suitable breeding habitat appears to be very marginal at that lake.

CLIFF SWALLOW: For the second straight summer, John Fussell noted birds at a bridge at Oriental, N.C. Four or five were seen on 16 May; they were presumed to be nesting under the bridge.

FISH CROW: Seldom reported in North Carolina from the foothills, one was seen and heard calling at Tryon on 20 April by Simon Thompson.

WOOD THRUSH: Lex Glover heard one at Mayesville, S.C., on the very early date of 13 March.

CEDAR WAXWING: John Fussell reported 20 birds, a large number, on the late date of 31 May near Atlantic, N.C.

PHILADELPHIA VIREO: One non-singing bird was seen along the Neuse River east of Raleigh on 8 May by Ricky Davis. [Observers should always provide thorough details for all spring sightings in the Carolinas, as this is a very rare species at that season. -- HEL]

GOLDEN-WINGED WARBLER: Rare along the Fall Line, a singing male was noted by Peter Stangel in Aiken County, S.C., on 30 April.

TENNESSEE WARBLER: Heathy Walker observed two or three males on 23 April and a female on 24 April in her yard at Charlotte, N.C.

NORTHERN PARULA: Normally not seen in the piedmont until early April, one was early on 23 March at Charlotte (Heathy Walker).

CAPE MAY WARBLER: Seldom seen along the coast in spring was a male at Fort Fisher, N.C., on 28 April (Greg Massey, Jeremy Nance, Sam Cooper, et al.).

BLACKBURNIAN WARBLER: Simon Thompson noted a male on territory in the Sloan Bridge Picnic Area, Sumter NF, S.C., on 12 May. [Though this species presumably breeds in that state, conclusive evidence is lacking. --

HEL] Migrants in eastern North Carolina were single birds on 4 and 5 May in Pitt County (John Wright) and a rather late singing male at Jordan Lake on 23 May (Paul Saraceni).

KIRTLAND'S WARBLER: Lex Glover observed a singing male as close as three feet in a bush near Lugoff, S.C., on 1 May. Excellent details were provided. This is perhaps the first good sighting for the state since 1967, based on *Status and Distribution of South Carolina Birds* (Post and Gauthreaux, 1989).

BLACK-AND-WHITE WARBLER: Lex Glover found a singing male along Beaver Dam Creek near SC 42 in northern Kershaw County, S.C., on 29 May.

WORM-EATING WARBLER: John Wright has found the species in the past few summers, including spring 1990, along Chicod Creek at the Pitt - Beaufort County, N.C., line. This is the only known site of presumed nesting by the species in Pitt County, according to Wright.

LOUISIANA WATERTHRUSH: Jeremy Nance noted one singing on territory about 8 miles north of Supply in Brunswick County, N.C., on 17 May. The habitat was a swampy area; Swainson's Warblers were heard singing nearby for comparison.

WILSON'S WARBLER: Individuals were reported in North Carolina at Boone on 4 May (Bob Holmes, Ken Wilkins) and in eastern Chatham County on 6 May (Harry LeGrand).

CANADA WARBLER: Scarce in central South Carolina were one on 30 April and two on 2 May near Columbia (Roger McNeill).

CLAY-COLORED SPARROW: Always a good find in winter, one was studied at a feeder from mid-March to 20 April by John and Susan Bumgarner near Fuquay-Varina, N.C.

FOX SPARROW: A very late straggler was seen through 5 May at Winston-Salem, N.C., as noted by Ann Pollard, Sue Moore, and others.

LINCOLN'S SPARROW: This elusive migrant was reported twice this spring; one was banded by Bill Hilton Jr. near York, S.C., on 24 April, and one was seen in northern Mecklenburg County on 29 and 30 April by David Wright and others.

WHITE-CROWNED SPARROW: An adult was seen in early May on Core Banks opposite Cedar Island, N.C., by Clay Fulcher.

BREWER'S BLACKBIRD: This species is a regular but easily overlooked migrant in northwestern South Carolina. Two females were seen in plowed fields near Townville on 10 April by Lex Glover and Kevin Calhoon.

NORTHERN ORIOLE: A presumed pair of orioles was present at Greenville, N.C., from 21 May to the end of the month, as reported by John Wright. This species does not normally nest in that state east of the Winston-Salem area.

COMMON REDPOLL: A complete surprise was a documented record of this winter finch from the coast of North Carolina on the unusually late dates of 5 to 14 May. Clay Fulcher saw a female at his feeder on Core Banks opposite Cedar Island; it was seen and photographed by Merrill Lynch and Derb Carter on 13 May.

EVENING GROSBEAK: One was rather late at Lugoff, S.C., on 9 May, as noted by Lex Glover.

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CBC

The Bodie-Pea Island Christmas Bird Count: a 25-year Summary

PAUL W. SYKES, JR.

The Early Years—1939–1953

The first Christmas Bird Count (CBC) to be taken on the Outer Banks of Dare County, North Carolina, was at Pea Island on 28 December 1939, by John H. Grey, Jr. (compiler), Katharine (Mrs. A. C.) Reed, and Sam A. Walker. They recorded 58 species and 6,300 individuals (Grey 1940). Subsequent counts were taken in 1942, 1946, 1947, 1948, 1950, 1951, and 1953 (Grey 1943; Shaftesbury 1947, 1948, 1949, 1951; Chamberlain 1952, 1954). These first eight counts covered only the Pea Island National Wildlife Refuge and Oregon Inlet areas except for the 1946 CBC, which also included Bodie Island. No CBCs were taken in the area for the next 11 years. These earlier counts were taken prior to construction of the bridge across Oregon Inlet, and during that period a ferry was the only access to Pea Island with a vehicle. The present standardized Bodie-Pea Island CBC, from 1965 onward, has been published annually in Audubon Field Notes (vols. 20–24), American Birds (vols.. 25–44) and The Chat (vols.. 30–42; CBCs last published in vol. 42). Names of species and species totals have been adjusted to conform to the latest taxonomy (AOU 1983 plus supplements). Results from earlier counts are not comparable with the CBCs taken 1965–1989 because the earlier efforts covered about half or less of the count circle and the intensity of coverage and time afield were less. For these reasons, data presented are from those counts taken 1965 and later.

A few comments on results of the earlier counts are in order. The mean number of species was 51 (range 39 in 1950 to 61 in 1953), and mean number of individuals was 16,878 (range 6,300–25,204) [Note: These figures do not include the 1951 CBC; the full results were not published and efforts to locate the missing data have been unsuccessful]. Two significant finds were a Barnacle Goose (1950) and two Snowy Owls (1946). These two species have not been recorded on the series of recent CBCs. Two additional species were reported, an immature Golden Eagle (1951) and a Solitary Sandpiper (1947), but there is some question regarding correct identification of these two birds. Turkey Vultures were apparently somewhat more regular earlier, as three of seven counts reported them (high of 15 in 1942), whereas in the past 25 years only one individual (1970) was recorded. Early on, Bald Eagles were also more common. Six out of seven counts recorded them (range 4–18 individuals), with 18 birds reported in 1946 and 1947. Only one eagle has been recorded between 1965–1989. There has been an increase in the number of Ring-billed Gulls since the earlier period. The 1939–1953 counts had a high, twice, of 200 Ring-bills, two other counts reported only three individuals, and two counts had none. In contrast, from 1965 to 1989, the number of Ring-bills ranged from 419 to 76,600 with a count mean of 13,459.

The Current Count—1965–1989

The current Bodie-Pea Island CBC was started on 28 December 1965, and the count circle has remained the same since its inception. The center of the 15-mile diameter count circle (latitude 35°47'N, Longitude 75°32'W) is 2.7 miles SSE of the Bodie Island Lighthouse and includes the southern part of Bodie Island from a point 1.8 miles south of Whalebone Junction south to New Inlet on Pea Island NWR and the Wanchese sector of Roanoke Island. Habitats within the count consist of the Atlantic Ocean and Pamlico Sound 80% (most of which is not covered since access to boats has been limited), salt and brackish marsh and freshwater ponds 10%, herb-shrub thicket 5%, sand beach, vegetated sand dunes, and tidal flats 3%, and loblolly pine and mixed woodland 2%. Since the circle lies on the north-south axis of a narrow barrier island system, less than 10% of the count circle is upland habitat. Because of the restricted amount of upland habitat, a number of the common land birds of the region have been absent or infrequent in their occurrence (i.e. Turkey and Black Vultures, Hairy Woodpecker, Horned Lark, Tufted Titmouse, White-breasted Nuthatch, Eastern Bluebird, Loggerhead Shrike, Rusty Blackbird, etc.), while those species associated with saline and freshwater habitats have been diverse and abundant.

The count has had a loyal following. A total of 184 different people participated over the 25-year period, and of these, 30 took part on more than 25% of the counts, and 10 participated on more than 50% (Table 1). The author has been the compiler for the 25-year period. Of those that participated on the count since 1965, only 13 (7%) lived within 50 miles or less of the count circle. The mean number of observers per count was 26 (range 5–41) and the mean number of party hours was 99 (range 21–184).

From 1965 to 1989, 228 species of birds were recorded on the count. The mean number of species per count was 139 (range 107 to 159). These figures are interesting when one considers the extremely limited number and area of upland habitats within the count circle. On the other hand, the small "islands" of upland habitat have a concentration effect on some land birds and can be more easily covered by a few observers with a coordinated effort. Barrier islands are typically narrow in width, and the various habitats are usually linear and patchy creating an array of ecotones. These extensive ecotonal conditions support a rich species diversity. This diversity was represented on the 25 counts by 46 families or subfamily groups.

The mean number of individual birds per count was 65,145 (range 15,100–185,664). The wide fluctuation in numbers of individuals from year to year was primarily due to the presence or absence of large aggregations of Snow and Canada Geese, dabbling and diving ducks (Red-breasted Mergansers in particular), Sanderlings, Ring-billed and Herring Gulls, and Yellow-rumped Warblers. The greatest fluctuations occurred with the two species of gulls. For instance, in 1978 there were an estimated 74,600 Ring-billed Gulls and 44,300 Herring Gulls on the count, which accounted for 64% of the 185,664 individuals reported. These two species together with an estimated 1,000 Laughing Gulls, 1,100 Bonaparte's Gulls, and 3,259 Great Black-backed Gulls were attracted to the area by a massive fish kill. Such a phenomenon on this scale was

Table 1. Participants that have taken part on more than 25% of the Bodie-Pea Island, North Carolina CBCs, 1965–1989.

	% Counts	State of Residence 1989
Bob Anderson	52	VA
Ned Brinkley	32	VA
Mike Browne	28	NC
Allen Bryan	44	NC
Ricky Davis	28	NC
John Fussell	52	NC
Charles Gibson	36	VA
Bob Hader	32	NC
David Hughes	52	VA
Kent Ihrman	52	VA
Wayne Irvin	32	NC
Ken Knapp	56	NC
Edmund LeGrand	40	NJ
Harry LeGrand	92	NC
Bob Lewis	40	NY
Paul McQuarry	28	VA
Merrill Lynch	40	NC
Dwight Peake	28	GA
Richard Peake	36	VA
Butch Pearce	32	VA
Bob Pilch	32	VA
Bill Portlock	52	VA
Don Schwab	32	VA
Paul Sykes	100	GA
Mike Tove	40	NC
Bob Tripician	52	VA
Gary Williamson	64	VA
John Williamson	32	SC
Townley Wolfe	28	VA
John Wright	32	NC

very infrequent. Unlike many counts, there have never been large concentrations of blackbirds and European Starlings on the Bodie-Pea Island CBC.

A total of 71 species were common to all 25 CBCs (Table 2). This was 31% of all species recorded on this count through 1989. As one might expect, 62% of these species were associated with wetland habitats and these same species also constituted the majority of the total individuals. The number of individuals for the 71 species varied from year to year. Sixty-five percent of the lowest number of individuals were recorded during the first five years (1965–1969) of the count. This was in part the result of less intense coverage as party hours were 78, 70, 52, 30, and 39% for the five years, respectively, below the mean of 99 party hours for the count. The 12 most abundant species on the counts listed in descending order, based on cumulative totals of individuals over the past 25 years, were: Ring-billed Gull, Herring Gull, Yellow-rumped

Warbler, Snow Goose, Green-winged Teal, Northern Pintail, American Robin, Canada Goose, Tundra Swan, Red-breasted Merganser, Northern Gannet, and American Black Duck. The two passerines among this group were interesting in view of the limited upland available. The relatively mild maritime climate and seasonally abundant food resources [invertebrates and fruits of red cedar (*Juniperus virginiana*), bayberry (*Myrica pensylvanica*), wax myrtle (*Myrica cerifera*), greenbriar (*Smilax* spp.), and yaupon (*Ilex vomitoria*)] may account for the abundance of these two passerines as well as others.

Table 2. Birds observed on 100% of the Bodie-Pea Island, North Carolina CBCs, 1965–1989 (N = 71 species).

	Number of Individuals				
Species	Mean	Low	Years	High	Years
Red-throated Loon	129	7	65	795	89
Common Loon	59	1	65,66	169	74
Pied-billed Grebe	94	23	69	258	84
Northern Gannet	1305	83	67	6300	79
American Bittern	7	1	86,87	19	71
Great Blue Heron	45	3	65	96	75
Great Egret	30	1	69	127	85
Tricolored Heron	21	1	65	46	75,85
Black-crowned Night-Heron	51	3	82	132	75
Tundra Swan	1612	52	65	12,800	84
Snow Goose	5842	1396	65	16,125	75
blue morph	17	1	78	59	81
Canada Goose	2306	285	83	8650	75
Green-winged Teal	2997	105	83	13,050	78
American Black Duck	1303	222	65	8800	68
Mallard	165	54	66	460	85
Northern Pintail	2960	330	83	8080	80
Northern Shoveler	744	120	67	1480	85
Gadwall	430	77	67	2000	85
American Wigeon	736	34	65	3945	89
Canvasback	176	1	80	1042	78
Ring-necked Duck	71	1	80,82,86	345	71
Bufflehead	259	9	87	1500	72
Hooded Merganser	84	11	69	265	89
Red-breasted Merganser	1400	20	88	13,600	74
Northern Harrier	30	9	65	53	74
American Kestrel	23	6	65	48	74,75
Merlin	5	1	67,83	11	89
American Coot	840	75	65	3645	89
Black-bellied Plover	185	25	66	600	74
Greater Yellowlegs	36	5	68	152	88
Sanderling	766	63	82	4500	71
Western Sandpiper	63	1	88	358	67
Dunlin	1102	95	68	3900	74

Table 2. (cont.) Birds observed on 100% of the Bodie-Pea Island, North Carolina CBCs, 1965–1989 (N = 71 species).

	Number of Individuals				
Species	Mean	Low	Years	High	Years
Common Snipe	32	3	65,66,82	158	74
Bonaparte's Gull	439	5	65	2610	88
Ring-billed Gull	13,459	419	66	74,600	78
Herring Gull	9503	974	67	44,300	78
Great Black-backed Gull	984	178	69	3259	78
Mourning Dove	69	2	65	173	88
Belted Kingfisher	23	2	65	79	75
Red-bellied Woodpecker	11	5	65,87	21	76
Downy Woodpecker	8	1	83	16	89
Northern Flicker	120	40	65,66	236	74
American Crow	67	5	65	865	83
Carolina Chickadee	27	12	65,66	57	89
Brown Creeper	4	1	77,79,87	11	75,78
Carolina Wren	77	14	65	154	89
House Wren	16	1	65,66,89	40	74
Sedge Wren	43	1	65	248	74
Marsh Wren	34	4	65	213	84
Ruby-crowned Kinglet	14	4	65,66,77,80	38	86
American Robin	2600	81	87	20,500	85
Gray Catbird	75	10	65	168	85
Northern Mockingbird	45	13	82	95	89
Brown Thrasher	12	1	65	26	89
Cedar Waxwing	92	2	75	377	82
European Starling	422	135	65	921	78
Yellow-rumped Warbler	7089	439	66	19,582	75
Northern Cardinal	59	12	65	112	87
Rufous-sided Towhee	91	18	65	165	89
Field Sparrow	24	1	65	75	74
Savannah Sparrow	164	36	65	365	74
Fox Sparrow	17	3	74	68	77
Song Sparrow	171	27	65	322	68
Swamp Sparrow	179	7	65	483	74
White-throated Sparrow	82	9	65	175	72
Red-winged Blackbird	579	22	66	1275	81
Eastern Meadowlark	213	46	86	1409	66
Boat-tailed Grackle	413	128	70	1073	82
American Goldfinch	75	4	84	408	69
House Sparrow	35	6	85	89	68

Birds observed on 75% or more of the counts but less than 100% totalled 45 species (Table 3). Of these, 73% when present, were represented by one individual for the lowest number of individuals recorded. Fourteen species were missed on only one count in 25. These species were: Double-crested Cormorant, Snowy Egret, Ruddy Duck, Sharp-shinned Hawk, Virginia Rail, Killdeer,

Table 3. Birds observed on 75% or more but less than 100% of the Bodie-Pea Island, NC CBCs, 1965–1989 (N = 45 full species).

Species	Frequency (%)	No. Individuals Low	High
Horned Grebe	92	1	450
Double-crested Cormorant	96	3	6210
Snowy Egret	96	3	42
Little Blue Heron	88	1	30
Redhead	80	1	4000
Lesser Scaup	92	1	1200
Oldsquaw	76	1	279
Black Scoter	92	7	911
Surf Scoter	92	1	980
Ruddy Duck	96	9	722
Sharp-shinned Hawk	96	1	25
Red-tailed Hawk	76	1	10
Peregrine Falcon	76	1	3
Ring-necked Pheasant	92	1	62
Clapper Rail	88	1	26
King Rail	84	1	21
Virginia Rail	96	1	38
Semipalmated Plover	84	1	32
Piping Plover	88	1	41
Killdeer	96	1	51
American Avocet	88	1	125
Lesser Yellowlegs	92	2	91
Short-billed Dowitcher	80	1	113
American Woodcock	76	1	9
Laughing Gull	96	2	5770
Royal Tern	92	2	98
Forster's Tern	96	10	1329
Barn Owl	84	1	8
Eastern Screech-Owl	80	1	8
Yellow-bellied Sapsucker	96	1	18
Blue Jay	88	1	66
Fish Crow	96	1	2000
Brown-headed Nuthatch	96	2	25
Winter Wren	92	1	14
Golden-crowned Kinglet	88	2	43
Hermit Thrush	96	2	20
Orange-crowned Warbler	80	1	7
Pine Warbler	88	1	25
Palm Warbler	92	1	15
Common Yellowthroat	92	3	36
Savannah (Ipswich race) Sparrow	84	1	14
Sharp-tailed Sparrow	96	2	81
Seaside Sparrow	96	1	20
Dark-eyed Junco	88	1	41
Common Grackle	92	1	372
Purple Finch	80	1	147

Laughing Gull, Forster's Tern, Yellow-bellied Sapsucker, Fish Crow, Brown-headed Nuthatch, Hermit Thrush, and Sharp-tailed and Seaside Sparrows. An absence of any of these species from a single count was probably not significant, but more likely represents a deficiency in sampling (i.e. coverage).

Forty-seven species were observed on the counts 21 to 74% of the time (Table 4), and 65 species were recorded on 20% or less of the counts in the past 25 years (Table 5). About 33% of those in this latter category were considered true accidentals on this CBC. Several species expected on the nearby mainland of North Carolina occurred infrequently on the count. These species included Wood Duck, Turkey Vulture, Bald Eagle, Horned Lark, White-breasted Nuthatch, Eastern Bluebird, Loggerhead Shrike, Vesper Sparrow, Lincoln's Sparrow, and Rusty Blackbird. For most of these 10 species there simply was not sufficient habitat within the count circle. For this same reason, some species have not been recorded on the count (i.e. Black Vulture, Barred Owl, Red-headed Woodpecker, and Red-cockaded Woodpecker.

Status, Trends, and Impressions

A number of trends have become apparent in the course of 25 years on the Bodie-Pea Island CBC. Red-throated and Common Loons, Pied-billed Grebe, and Northern Gannet have been common, but their numbers have varied year to year. Brown Pelicans were very infrequent on the counts in the 1960s (recorded on one CBC) and the 1970s (recorded on two CBCs). Starting in 1980 they have been regular, appearing on every count since that year. Over the last 10 years, there was an average of 154 pelicans per count (range 40 to 325). Great Cormorants were not reported on the counts in the 1960s, were infrequent in the 1970s (recorded on four CBCs, all single birds), and were recorded on one count (one bird) during the first half of the 1980s. Since 1986, they have been regular each year, often several birds being observed (mean 2.5, range 1–6). Double-crested Cormorant also has increased. This increase was evident in the mean number of birds at 10-year intervals; 13 birds per count (range 0–51) in 1960s, 115 birds per count in 1970s (range 3–638), and 874 birds per count in 1980s (range 24–6,210). Thus, these three species of inshore fish eaters have increased substantially in recent years, a trend that has been reflected continent-wide.

White Ibises were not recorded on the Bodie-Pea Island CBC until 1973, but have been regular each year since (except 1980) with a mean of 35 birds per count over the last 17 years (range 1–127). There was a significant increase of White Ibis, with a mean of 63 birds per count (range 18–127) between 1981–1989. Glossy Ibis has been fairly regular with a 25-year mean of six birds per count (range 0–38). There were no apparent trends for the more common waterfowl other than the fact there were often large differences in the number of individuals from year to year. A single Ross' Goose was recorded for two years in a row with 5– to 8–year intervals of absence (i.e. present 1971–1972, 1981–1982, and 1989). Since 1985 both Common and King Eiders have been more frequent and the number of individuals has increased (prior to 1985 all observations were of lone birds).

Northern Harrier, Sharp-shinned Hawk, and American Kestrel have been the most common and widespread raptors on the count; the Merlin has been regular but in much lower numbers than these three species. Buteos have tended to avoid the North Carolina barrier islands and have been found in fairly

Table 4. Birds observed on 21 to 74% of the Bodie-Pea Island, NC CBCs, 1965–1989 (N = 47 species).

Species	Frequency (%)	No. Individuals Low	No. Individuals High
Brown Pelican	52	1	325
Great Cormorant	36	1	6
White Ibis	64	1	127
Glossy Ibis	72	1	38
Brant	44	3	591
Blue-winged Teal	72	1	39
Greater Scaup	68	2	43
Common Eider	32	1	7
White-winged Scoter	68	3	298
Common Goldeneye	68	1	239
Common Merganser	32	1	31
Cooper's Hawk	64	1	3
Red-shouldered Hawk	68	1	3
Northern Bobwhite	72	1	38
Black Rail	24	1	2
Sora	60	1	5
Common Moorhen	44	1	6
American Oystercatcher	32	1	22
Willet	68	1	136
Marbled Godwit	36	1	24
Ruddy Turnstone	64	1	15
Red Knot	48	2	95
Least Sandpiper	64	1	161
Long-billed Dowitcher	68	2	101
Parasitic Jaeger	52	1	2
Lesser Black-backed Gull	28	1	4
Black-legged Kittiwake	48	1	43
Common Tern	32	1	9
Black Skimmer	40	1	90
Rock Dove	36	1	8
Great Horned Owl	56	1	4
Short-eared Owl	64	1	6
Hairy Woodpecker	44	1	2
Pileated Woodpecker	52	1	4
Eastern Phoebe	56	1	6
Tree Swallow	52	1	1850
Tufted Titmouse	24	1	2
Red-breasted Nuthatch	68	1	25
American Pipit	52	1	15
Yellow-breasted Chat	28	1	3
Chipping Sparrow	56	1	20
White-crowned Sparrow	24	1	11
Snow Bunting	24	1	19
Brown-headed Cowbird	60	1	64
House Finch	28	1	61
Pine Siskin	68	1	393
Evening Grosbeak	52	1	152

Table 5. Birds observed on 20% or fewer of the Bodie-Pea Island, NC CBCs, 1965–1989 (N = 65 species).

Species	Highest Number	Year(s) Recorded
Red-necked Grebe	4	71
Eared Grebe	1	67
Shearwater sp.	1	70
Least Bittern	1	75
Great Blue Heron (white form)	1	75
Cattle Egret	1	73,75,79
Green-backed Heron	1	72,74,83,86
Yellow-crowned Night-Heron	2	70,71,81
Greater Flamingo	1	78
Greater White-fronted Goose	1	72,81
Ross' Goose	1	71,72,81,82,89
Wood Duck	10	69,72,81,83,89
Green-winged Teal (Eurasian)	1	69,70,72
Eurasian Wigeon	2	81,89
King Eider	3	75,83,85,87,89
Harlequin Duck	2	77,89
Turkey Vulture	1	70
Bald Eagle	1	89
Rough-legged Hawk	2	74,75,76
Yellow Rail	1	70,72
Lesser Golden Plover	1	72
Whimbrel	1	87
Long-billed Curlew	1	74
Black-tailed Godwit	1	9
Hudsonian Godwit	1	80
Purple Sandpiper	5	67,87,89
Stilt Sandpiper	5	75
Red-necked Phalarope	1	87
Red Phalarope	1	78
Pomarine Jaeger	4	71,72,81,82,86
Little Gull	1	71,83,88,89
Common Black-headed Gull	1	85
Iceland Gull	1	75,88
Glaucous Gull	1	73,76,82,88,89
Caspian Tern	3	73,74
Dovekie	2	70,75,78,87
Razorbill	1	82,85
Northern Saw-whet Owl	1	71
Chuck-will's widow	1	84
Whip-poor-will	1	72,78
Great Crested Flycatcher	1	73
Western Kingbird	2	84
Horned Lark	2	71,87,89
White-breasted Nuthatch	1	65,73,78
Blue-gray Gnatcatcher	2	70,73,84,85
Eastern Bluebird	1	69,70,75
Loggerhead Shrike	1	69
White-eyed Vireo	1	76
Solitary Vireo	3	70,73,85,87,88

Table 5. (cont.) Birds observed on 20% or fewer of the Bodie-Pea Island, NC CBCs, 1965–1989 (N = 65 species).

Species	Highest Number	Year(s) Recorded
Nashville Warbler	1	79,84
Black-throated Blue Warbler	1	73
Prairie Warbler	1	85
Northern Waterthrush	1	79
Connecticut Warbler	1	73
Western Tanager	1	77
American Tree Sparrow	4	75,76,78,89
Clay-colored Sparrow	1	80
Vesper Sparrow	7	74,75,77,79
Grasshopper Sparrow	1	69,70,78
LeConte's Sparrow	2	74
Lincoln's Sparrow	2	65,66,68,69,79
Lapland Longspur	1	71,75
Yellow-headed Blackbird	1	73,85
Rusty Blackbird	4	69,75,85
Northern (Baltimore) Oriole	2	75,78,81,82
Red Crossbill	14	69,71,74,76
Common Redpoll	2	69

low densities within the count circle and have been absent in some years. Peregrine Falcon was irregular until the late 1970s but has become regular since that time (range 1–3 birds per count). The introduced Ring-necked Pheasant was regular through 1983 (Pea Island only) but has been absent on the count since then. The presence of feral house cats (*Felis catus*) and the relatively recent appearance of gray foxes (*Urocyon cinereoargenteus*) on Pea Island may have decimated the pheasant population in that area during the past several years. All the Rallidae, except American Coot and perhaps Common Moorhen, have been grossly undercounted on this count (as is probably the case on the vast majority of CBCs where these birds occur) because of their secretive nature in dense cover.

Black-bellied, Semipalmated, and Piping Plovers, Killdeer, American Avocet, Greater and Lesser Yellowlegs, Sanderling, Western Sandpiper, Dunlin, and Common Snipe have been regular on the count over the past 25 years. The American Oystercatcher was not recorded until 1982, but has been on every count since (mean 11.5, range 1–22), with an increase in numbers since 1987. Willets have been regular for periods followed by years when absent (i.e. present 1969–1974, 1976–1979, 1983–1989). Ruddy Turnstones have shown a pattern of occurrence similar to the Willet. Red Knots became regular starting in 1982 and since that time have averaged 41 birds per count (range 2–95). Least Sandpipers were regular 1966–1976 but have been sporadic since then. Generally when cold temperatures occur in December prior to the count, the more cold sensitive shorebirds (i.e. Lesser Yellowlegs, Least Sandpiper, the two dowitchers) have tended to move out of the area or they have been observed in smaller numbers. The Purple Sandpiper was recorded only three times in 25 years, but with the newly constructed jetty of granite boulders at Oregon Inlet this species will probably become regular in the area. This jetty will probably attract Ruddy Turnstones, two species of eiders, and Harlequin Ducks also. The American Woodcock has been fairly regular in small numbers, but has been missed in some years.

Laughing, Bonaparte's, Ring-billed, Herring, and Great Black-backed Gulls have been of regular occurrence. The Lesser Black-backed Gull has been sporadic on the Bodie-Pea Island CBC but has become more frequent since the mid 1970s. The Black-legged Kittiwake has been common offshore but sightings from land have been relatively few on the count. Royal and Forster's Terns have been regular, but the Royal Tern's presence appears to be related to mild temperatures through December. The Black Skimmer has been erratic in occurrence.

Barn Owls and Eastern Screech-Owls have been regularly observed while Great Horned and Short-eared Owls have been somewhat erratic. Red-bellied Woodpeckers, Yellow-bellied Sapsuckers, Downy Woodpeckers, and Northern Flickers have been quite regular on the counts, while the Hairy Woodpecker has been sporadic and, since the late 1970s difficult to find in the area. The Eastern Phoebe also has been sporadic, being found regularly from 1970–1977 and 1984–1989 but absent during the intervening periods. Surprisingly, Tree Swallows have been erratic in their occurrence throughout the 25-year period. The Blue Jay had been spotty for the first five years, but since that time has been regular, with numbers generally increasing since the early 1980s. The two crows have been regular with the Fish Crow becoming the more abundant in the 1980s. Carolina Chickadee, Brown-headed Nuthatch, Brown Creeper, five species of wrens, the two kinglets, Hermit Thrush, American Robin, Gray Catbird, Northern Mockingbird, and Brown Thrasher all occurred regularly during the 25-year period. Cedar Waxwings and European Starlings were recorded on all the counts. The Orange-crowned Warbler was regular in small numbers for the periods 1968–1976 and 1984–1989 but erratic during the other periods. The Palm Warbler has been regular in small numbers in all years, except for 1982 and 1983 when it was missed. The Common Yellowthroat has been regular but was missed in 1965 and 1980.

Northern Cardinal and Rufous-sided Towhee were regular and common on all counts. Field, Savannah, Sharp-tailed, Seaside, Fox, Song, Swamp, and White-throated Sparrows were regular on all counts, except Sharp-tails and Seasides which were missed in 1966. Dark-eyed Juncos were observed on all counts, except 1971, 1986, and 1987. It was surprising that Snow Buntings were observed on only six counts in 25 years as there was extensive habitat for them within the count circle. Red-winged Blackbirds, Eastern Meadowlarks, and Boat-tailed Grackles were regular on all counts. While the Common Grackle is abundant in the count area during warmer months, it is much less common during the winter and was missed on the CBCs in 1979 and 1986. Brown-headed Cowbirds were erratic on the counts from 1965–1983, but were regular in 1984–1989. As expected, the irruptive Purple Finches, Pine Siskins, and Evening Grosbeaks have been erratic in their occurrence over the 25-year period. The first House Finch was found on the 1976 count and was not recorded again until 1984. It has been regular since then with increasing numbers. American Goldfinches and House Sparrows have been recorded on all counts.

The past 25 years of the Bodie-Pea Island CBC have produced some interesting results. The 228 species of birds recorded is impressive and birders find a certain fascination with this section of the Outer Banks. Since about 85% of the land mass within the count circle is in public ownership (Pea Island NWR and Cape Hatteras National Seashore), the habitats within these areas should change relatively little other than those changes imposed by natural forces. The narrow strip of private property along the ocean and to the east of NC Route 12 on the north half of Bodie Island has been developed (with beach cottages) for many years, so the initial disturbance has already taken place. The small quiet village of Wanchese on the southern tip of Roanoke Island has changed very little over the years, but the north end of Roanoke Island is developing rapidly, and, with time, this may reach the Wanchese area. Intensive development at Wanchese would make a serious impact on the CBC results as many of the land birds are found only in this sector of the count. It will be interesting to see what the next 25 years will reveal for this CBC.

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General Field Notes

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A Peregrine Falcon nest at Table Rock, South Carolina

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In cooperation with the Peregrine Fund, personnel of the NonGame and Heritage Trust Section of the South Carolina Wildlife and Marine Resources Department released 38 young Peregrine Falcons (*Falco peregrinus*) at Lake Jocassee, Pickens County, S. C. between 1986 and 1990. In addition, they released 9 young falcons at Table Rock, Pickens County, S. C. in 1985 and 1986 after which time we occasionally received reports of falcons seen at Table Rock. Although no falcons were sighted during the nesting season at Table Rock by official observers between January 1986 and May 1990; by 1990 casual falcon sightings from reliable sources became more frequent.

On 17 May 1990, I observed one adult falcon for about 5 min while conducting a watch from the north cliff face of Table Rock during 1600–1900 h EDT. On 29 May during a helicopter survey flight, Allen Boynton of the North Carolina Wildlife Resources Commission and I found an eyrie with two young peregrines in an opening on the north cliff face. These young were near fledgling age. We also saw a flying adult near the eyrie. Allen also noticed a Common Raven's (*Corvus corax*) nest at the same opening; but he could not tell if it had been used recently. On 4 June 1990, I checked the eyrie from the

Table Rock Reservoir dam using a Questar telescope, but I saw no falcons. Heyward Douglas of Clemson made five trips to the top of Table Rock on 5, 9, 12, 19, 25 and 26 June. He saw adult falcons on three trips and a juvenile on the last visit.

The above is the first known nesting of the Peregrine Falcon in south Carolina since 1933 when R. E. Ware reported a pair bringing food to young in a nest at Caesars Head, Greenville County (Sprunt and Chamberlain, South Carolina Bird Life, Univ. South Carolina Press, Revised Ed., 1970; Post and Gauthreaux, Contrib. Charleston Mus. 18, 1989). Caesars Head is 8.6 km NE of Table Rock.

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Predation by Rusty Blackbirds on Songbirds at a Winter Feeder

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We live in Long Beach, North Carolina, located on Oak Island in Brunswick County. Snow here is very uncommon, usually amounting to a dusting once per winter. On Friday, 22 December 1989, snow began to fall at about 2300 h and continued until 1200 h on Sunday, 24 December, with a total accumulation of about 40 cm.

Numerous birds of different species visited our large, multi-stage feeder in the back yard during the storm. Just before 1200 h on 23 December, we noticed a Rusty Blackbird (*Euphagus carolinus*) picking at a Brown-headed Cowbird (*Molothrus ater*) on our back porch, just outside our sliding glass doors. The cowbird was barely alive. The Rusty Blackbird pecked at the head, eyes, and throat. This attack continued for quite some time, with the blackbird tearing off pieces of flesh and eating them. To the best of our knowledge, the blackbird never attacked the body of the cowbird but concentrated on the head, eyes, and particularly the throat.

Sometime later, the same Rusty Blackbird flew up and knocked an American Goldfinch (*Carduelis tristis*) out of the air onto our back porch, which was covered with approximately 35 cm of snow. We started out the back sliding door to see if we could save the goldfinch and both birds flew, but the blackbird knocked the goldfinch out of the air again after it had flown only about 3 m. Both birds landed under our back porch. That was the last we saw of either of them.

Cummings (*in* Bent, 1958) described Rusty Blackbirds killing Common Snipe (*Gallinago gallinago*) and American Robins (*Turdus migratorius*) after a heavy snowfall in Texas in 1895. He also reported that the blackbirds ate only from the head of their prey and left the body untouched. It is possible that predation on birds may serve as an alternate feeding strategy for Rusty Blackbirds during times such as snowstorms when food is scarce or difficult to find.

Acknowledgments. We thank Lynn Moseley for suggestions concerning this note.

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Inland Records of Brant in the Carolinas and Observations of Kleptoparasitic Behavior

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On seven dates from 1–29 December 1989, I watched a light-bellied Brant (*Branta bernicla hrota*) feed among a flock of American Coots (*Fulica americana*) at Lake Paul Wallace, Bennettsville, Marlboro County, South Carolina. The blackish head, neck, and breast, fairly evenly barred sides, and evenly barred mantle and wing coverts with grayish or grayish-buff margins indicated the bird was in basic plumage (see Palmer 1976, illus., pp. 247). The small incomplete whitish necklace on each side of the neck below the throat was present though not overly distinct. The bird swam and flew well and was apparently uninjured. I discovered the Brant on 1 December when I did not observe any visible migration in the area; the Brant probably arrived between 17 and 30 November when a series of cold fronts passed through the region. On 29 December, the Brant was present at Lake Wallace which was almost frozen over with only one small open area where all the waterbirds congregated. Two days later, the entire lake had frozen over, and the Brant was gone, though a flock of 40 feral Canada Geese (*B. canadensis*) remained.

On 22 January 1990, the same Brant, with the necklaces a bit more distinct, was again present at Lake Wallace with a flock of 450 coots. The flock of coots returned on about 15–16 January (O. Driggers pers. comm.), when the Brant probably returned with them. The coots' whereabouts since 29 December is unknown, and except for a few on the Pee Dee River, they were not known to be present in Marlboro County after late December until 15–16 January.

Post and Gauthreaux (1989) correctly eliminated several reputed records of Brant in November 1974 near Clemson, S.C. (Am. Birds 29:41, 1975); these records are a misprint (H. E. LeGrand, Jr. pers. comm.). Thus, the Brant at Lake Wallace is the first documented inland record for South Carolina. On the coast, the Brant is very rare from late fall to early spring (Post and Gauthreaux 1989)

North Carolina has only two inland records of the Brant. I watched a solitary Brant rest for 30 min in corn field stubble near Ross Pond, Anson County, within the Pee Dee NWR on 8 December 1979. The bird was seen independently by L. P. Hartis and several other observers from 7 to 11 December. The bird was in basic plumage, using the same criteria as above; the incomplete white necklaces were indistinct. The Brant appeared to be in good health, but was very tired, and probably arrived the night of 6-7 December, following a strong cold front from the NW.

On 14 November 1983, B. and M. Wagner and M. A. Foster saw an immature (= juvenile) Brant at Jordan Lake, also in the Piedmont, for the only other inland N. C. record (Chat 48:53, 1984). The bird was identified as an immature on the basis of the lack of white necklaces. The head and neck were described as black or deep brown, the upperparts as slaty-black or brown. The observers were uncertain of the color on the foreparts and upperparts and did not describe the pattern of the upperparts. If present, the crescent necklaces may be indistinct and not readily seen at 100 m, the distance the bird was from the observers. Consequently, I believe that further documentation of the plumage of this Brant is necessary to conclude that the bird was a juvenile.

The Brant at Marlboro County, S.C., usually fed among a single large flock of coots, ranging in size from 100 to 600 birds. I watched the Brant feed for a total of 240 min at a distance of usually less than 20 m. The Brant frequently kleptoparasitized the coots, i.e., stealing already procured food (Brockmann and Barnard 1979), robbing many of abundant submerged green algae which the coots brought up to the surface in beakfulls (N > 600 observations). The Brant cruised among the coots and swam directly towards the coots after they emerged with food, or waited over a briefly submerged coot until it surfaced, to rob it of food. As coots must surface before eating food, kleptoparasitism was an easy task. Usually, the Brant stole only a portion and the coot retained some of the algae. The Brant also used the coots as "beaters", following them to good foraging areas, and then displacing them. All kleptoparasitic strategies were very successful. Much less frequent were non-parasitic foraging methods, dipping the bill underneath the water or up-ending (submergence of head and neck) to feed on the same algae. The Brant spent almost all of its time feeding and preened occasionally.

Many of the coots did not attempt to protect their food from the Brant. Some individuals attempted to reclaim stolen food, but were unsuccessful. The Brant called only three times, a low guttural "cruk", during agonistic encounters with coots. Once, the Brant called and pecked with a partly open bill at a coot which attempted to reclaim part of its stolen food. The other times, the Brant gave the same call when it used a lowered-head threat when it displaced single coots reluctant to move from a favored foraging area.

On 22–23 and 29 December, when the lake was partly or mostly frozen over, many other waterfowl joined the coots to form a concentrated flock. The Brant then rarely attempted to kleptoparasitize both sexes of the Ring-necked Ducks (*Aythya collaris*) that were feeding on the algae; it was successful only once. The Brant did not attempt to kleptoparasitize any other species of waterfowl. The Brant never associated with the Canada Geese present.

Brockmann and Barnard (1979) did not list the Brant as a known kleptoparasite. Einarsen (1965; pp. 31) forcefully states that Brant may closely attend scaups, scoters, and goldeneyes foraging for shellfish, to feed on fragments of eelgrass and sea lettuce, when inadvertently brought to the surface by the other species. H. Boyd (*in litt.*) has observed unambiguous reciprocal kleptoparasitism between the dark-bellied Brant (*B. b. bernicla*) and the Eurasian

Wigeon (*Anas penelope*) in Norfolk, England, where each species pirated algae from the other. Brant may also follow oyster dredges that pull up eelgrass and other plants (Palmer 1976).

The large concentration of coots at Lake Wallace and a visible and abundant food supply of green algae, the Brant's favorite food, allowed the Brant to have an extended stay at Lake Wallace, S. C., which included a return to the site after an absence of about three weeks. In the two extralimital N. C. localities, where coots were absent or scarce, kleptoparasitism could not be used as a successful foraging strategy.

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An Unusually Small Red-cockaded Woodpecker Cavity Tree

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We found an unusually small Red-cockaded Woodpecker (*Picoides borealis*) cavity tree at the Santee National Wildlife Refuge, Clarendon County, South Carolina on 14 November 1990.

The cavity tree was a shortleaf pine (*Pinus echinata*) located in the Pine Island Unit on the edge of Lake Marion. This tree was part of a colony of predominantly loblolly pines (*P. taeda*) that had been damaged by Hurricane Hugo the preceding fall. According to assistant refuge manager Jerry Frengeli, several Red-cockaded cavity trees were blown down or snapped off by the hurricane. Although no Red-cockaded Woodpecker were present during our visit, the cavity tree had active signs of woodpecker use.

We measured the height and dbh (diameter breast high) of the cavity tree with a Sunto clinometer and measuring tape. The tree was 11.9 m tall and 17.5

cm dbh. the cavity itself, which faced southwesterly, was 3.5 m high. The diameter of the tree at cavity height was estimated to be 15 cm. We were not able to determine tree age but the average minimum age of southern yellow pine (other than longleaf [*P. palustris*]) for Red-cockaded cavity use is about 75 years (U. S. Fish and Wildl. Serv. 1985). We felt that the cavity tree, based on its form and crown shape, had been severely suppressed and was older than its size suggested. Conner and O'Halloran (1987) found that suppression was characteristic of Red-cockaded cavity trees in eastern Texas.

This tree was significantly smaller than hundreds of Red-cockaded Woodpecker cavity trees we have observed over the years. Shortleaf pine is an uncommon Red-cockaded cavity tree but Hopkins and Lynn (1971) reported average measurements of 59 loblolly pine cavity trees from adjacent Williamsburg County to be 45 cm dbh (range 33–60) and 28 m high (range 19–28 m). Of a total of 381 cavity trees (all pine species) measured statewide by Hopkins and Lynn, the smallest diameter breast high was 25 cm and the shortest height was 14 m.

Hooper, et al. (1980) gave a range of Red-cockaded cavity chamber dimensions as 15.2 to 25.4 cm deep and 7.6 to 12.7 cm wide. Red-cockadeds normally excavate cavity chambers in trees with adequate heartwood so as to avoid pine resin contamination from the sapwood. When accounting for bark, sapwood, and chamber dimensions, it appears that our cavity tree approaches minimum size to provide a cavity for Red-cockaded Woodpeckers.

Acknowledgements. We thank T. A. Beckett, III, F. Fringeli, and R. G. Hooper for their comments and reviews of this note.

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BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1990 unless otherwise indicated; BBS = Breeding Bird Survey)

BAND-RUMPED STORM-PETREL: One was seen by Michael O'Brien, Paul DuMont, and party off Oregon Inlet, N.C., on 14 July.

WHITE-TAILED TROPICBIRD: Always a good find, though regular in summer offshore, was one individual — an adult — seen by Michael O'Brien and Paul DuMont off Oregon Inlet on 14 July.

AMERICAN WHITE PELICAN: The only report for the summer was one seen on an island in Ocracoke Inlet, N.C., on 23 June (Wade Fuller).

GREAT CORMORANT: Extremely rare inland was an adult seen in comparison with Double-crested Cormorants perched in dead trees at Jordan Lake, Chatham County, N.C. Henry Link and Doug Shadwick saw the bird on 19 May. Nearly as unusual were two immatures seen by John Fussell at the bight at Cape Lookout, N.C., on the very late date of 11 June.

MAGNIFICENT FRIGATEBIRD: An immature was observed by Neill Lee and John Fussell over Beaufort Inlet, N.C., on 30 June. One — not an adult male — was seen about 30 miles off Charleston, S.C., on 1 July by Roger McNeill, Roger Clark, and Tim Kalbach.

AMERICAN BITTERN: The species was again reported in the breeding season at the Catfish Lake impoundment in Jones County, N.C. John Fussell saw one there on 8 July.

LEAST BITTERN: Robin Carter and others reported a very good count of 15 birds at Bear Island Wildlife Management Area, S.C., on 14 July. Always of interest inland was one seen on 8 July near Lucknow, Lee County, S.C. (Tim Kalbach).

GREAT EGRET: Paul Saraceni observed an adult on a nest at Dunahoe Bay in northern Robeson County, N.C., on 18 June for a new breeding locale for the species. One was noteworthy at Greensboro, N.C., on 11 June (Herb Hendrickson).

LITTLE BLUE HERON: The species apparently bred at Dunahoe Bay, N.C., as Harry LeGrand saw several adults there on 2 June and an immature following an adult in flight during July.

REDDISH EGRET: This species is now being reported annually along the Carolina coast in summer and fall, now that observers are becoming familiar with the immature plumage. One immature was seen by Eric Dean at Sunset Beach, N.C., on 15 July.

CATTLE EGRET: The heronry at Dunahoe Bay, N.C., is apparently expanding, and Harry LeGrand estimated at least 300 Cattle Egrets nesting at this Carolina bay in June, along with several pairs of Anhingas, Green-backed Herons, Great Egrets, and Little Blue Herons.

YELLOW-CROWNED NIGHT-HERON: A good breeding tally of this species was 17 pairs in a heronry at Ocracoke, N.C., as reported by James Parnell on 6 June.

GLOSSY IBIS: James Parnell noted approximately 100 nests, along with 200 nests of White Ibis, in the heronry at Ocracoke on 6 June. These are large numbers of ibises for this portion of the Outer Banks. Inland, Eric Dean saw two adult Glossies at Goldsboro, N.C., on 17 July.

MUTE SWAN: Lex Glover and Kevin Calhoon reported an immature on a pond at Pungo NWR, N.C., on 30 July.

BRANT: Michael O'Brien noted an out-of-season Brant in Oregon Inlet on 14 July.

NORTHERN PINTAIL: A male was unusual in midsummer on 4 July on Ocracoke Island, N.C. (Michael O'Brien).

REDHEAD: A male apparently summered at Davis Impoundment at Davis, N.C., as it was seen on 17 June by John Fussell and on 28 June by Paul Saraceni.

LESSER SCAUP: Kevin Calhoon noted a female near Lexington, S.C., on 17 June.

BUFFLEHEAD: Extremely unusual in summer in the Carolinas, a male was seen on Lake Murray in southeastern Newberry County, S.C., on 7 July by Kevin Calhoon, Kim Gundler, and Denise Smith.

COMMON MERGANSER: Completely unprecedented was the sighting of two immatures or females, believed to be immature males, during late summer at the Farrington area of Jordan Lake, N.C. Todd Hass, Mark Crotteau, Mike Tove, and others saw the birds, which were flightless, from 28 July to mid-August. [There is an old breeding record for North Carolina, and suitable nesting habitat in the form of dead trees with cavities, is present at the lake. However, there was no report of adults at the lake during the spring or summer, and this lake receives thorough birding coverage. Whether the species actually nested at the lake is thus debatable. — HEL]

RED-BREASTED MERGANSER: Paul Sykes saw a female on North Pond at Pea Island, N.C., on 7 July.

RUDDY DUCK: One bird, apparently a non-breeder, was at an impoundment near Aurora, N.C., on 5 July (Sam Cooper).

OSPREY: Simon Thompson reported that one was present all summer at Lake Adger in Polk County, N.C., but no evidence of nesting was noted.

AMERICAN SWALLOW-TAILED KITE: A first record for the Silver Bluff Audubon Sanctuary in Aiken County, S.C., was two kites on 21 July, as noted by Robin Carter and party. The species apparently breeds nearby in the Savannah River floodplain.

MISSISSIPPI KITE: An apparent visitor was an adult kite seen at Dunahoe Bay in Robeson County, N.C., on 2 June (Harry LeGrand); it was not seen on several later visits.

NORTHERN HARRIER: Likely breeding birds were at least four, including an adult male, at Piney Island, Carteret County, N.C. John Fussell noted the birds on 25 and 26 June. Two females or immatures, probably early fall migrants, were inland in northwestern Beaufort County, N.C., on 28 July (Harry LeGrand, John Wright, Russ Tyndall), as was one on 30 July in southwestern Bertie County, N.C. (Merrill Lynch).

SHARP-SHINNED HAWK: Paul Hart and others had several records of the species at Raven Rock SP, N.C., from 15 July to 11 August, including an immature giving a begging call. Simon Thompson saw a female carrying food in Lincoln County, N.C., on 21 June, and he saw an adult just south of Ellenboro, N.C., on 12 June. Also in that state, an immature was noted on 3 June at Winston-Salem by Ramona Snavely and Kay Bergey. In South Carolina, Lex Glover saw an adult near Camden on 2 June and an immature in the same area on 13 July; and Peter Worthington saw a pair in downtown Greenville during the summer.

COOPER'S HAWK: Simon Thompson saw an immature female with down feathers on its back and wings in southern Cleveland County, N.C., on 6 June. Other summer sightings, perhaps indicative of local breeding, were at Eno River SP (Mike Dunn, Scott Hartley), in eastern Guilford County (Herb Hendrickson), Rocky Mount (Merrill Lynch), Lake Rhodhiss in Caldwell County (Lynch), and near Statesville (Lynch) in North Carolina; and at Winnsboro (Robin Carter) in South Carolina.

BROAD-WINGED HAWK: Rare in the coastal plain in summer, single birds were reported near Newport, N.C., on 14 June (John Fussell); at the Cape Fear River near Elizabethtown, N.C., on 28 July (Merrill Lynch); at Sumter, S.C., on 8 June (Lex Glover, Evelyn Dabbs); and at Lugoff, S.C., on 12 July (Glover).

AMERICAN KESTREL: Conclusive nesting was reported at Winston-Salem, where a pair fledged three young in a brick building in May and June (Willard and Eva Robinson et al.); and in southern Cleveland County, N.C., where a pair nested in an old building in June (Simon Thompson).

PEREGRINE FALCON: This species nested at a number of mountain locales in North Carolina during the summer. Successful nesting was reported at Chimney Rock Park (Simon Thompson), Linville Gorge, Whiterock Cliff in Madison County, and Whiteside Mountain near Highlands (fide Allen Boynton). An unsuccessful nesting attempt was made at Looking Glass Rock north of Brevard; and birds were present during the summer at Pilot Mountain SP, Grandfather Mountain, and Mount Mitchell but were not known to have made a nesting attempt (fide Boynton).

BLACK RAIL: A new, but certainly predicted, site for the species was located this summer by John Fussell. He heard seven calling birds in the extensive marshes at Piney Island, Carteret County, N.C., on the night of 25-26 June; dozens of birds are believed to occur, as only a small portion of the marshes were sampled. At least five birds were calling at Bear Island, S.C., from 14 July to 4 August (Tim Kalbach et al.); this presumed nesting site was discovered in 1989.

VIRGINIA RAIL: John Fussell heard 13 birds calling on the night of 25-26 June at Piney Island in Carteret County for an excellent breeding-season count.

PURPLE GALLINULE: An adult was seen at Dunahoe Bay in Robeson County on 2 June by Harry LeGrand, but it could not be found on several later dates in the summer.

PIPING PLOVER: The breeding survey for the species on the North Carolina coast tallied 52 pairs in 1990, which was about equal to that in 1989. The southernmost pair was at Holden Beach (fide Derb Carter).

BLACK-NECKED STILT: Two birds, apparently a mated pair, were seen by John Fussell at Piney Island, N.C., on 25 and 26 June. Two birds were also seen on 28 June at nearby Davis Impoundment by Paul Saraceni.

AMERICAN AVOCET: Large numbers are often present in fall and winter at the spoil area in Jasper County, S.C., near Savannah, Georgia. Infrequently reported in summer there were three on 4 July and seven on 14 July (Robin Carter, Caroline Eastman, Tim Kalbach).

BAIRD'S SANDPIPER: Rare and early was one seen with Least Sandpipers on 10 July at Goldsboro, N.C., by Eric Dean.

CURLEW SANDPIPER: From one to three birds were seen at South Pond at Pea Island from 15 July into August by Paul DuMont, Merrill Lynch, Harry LeGrand, and others. Three were seen on 21 and 22 July by Lynch, LeGrand, and party.

SHORT-BILLED DOWITCHER: Fairly early in fall inland were six seen by Eric Dean at Goldsboro on 10 July.

FRANKLIN'S GULL: Michael O'Brien provided lengthy details and a sketch of a one-year-old bird (first summer plumage) studied in flight at North Pond on Pea Island on the early date of 7 July.

HERRING GULL: This species continues to expand in numbers and range as breeders along the North Carolina coast. The southernmost nesting this summer was at Sand Bag Island near Harkers Island, where two pairs were counted on 1 June by James Parnell.

GLAUCOUS GULL: The bird reported in the previous *Chat* from New River Inlet, N.C., remained until 24 June, as noted by Gilbert Grant.

GREAT BLACK-BACKED GULL: This species is also expanding its breeding range in North Carolina. At the southern limit of the range were 10 pairs on 9 May at Hatteras Inlet and one pair each on Shell Castle and North Rock islands in Ocracoke Inlet on 5 June (fide James Parnell).

GULL-BILLED TERN: Somewhat inland were five birds seen flying along South Creek near Aurora, N.C., on 5 July by Sam Cooper.

CASPIAN TERN: James Parnell and others tallied 13 pairs on one island, plus a single pair on another, in Oregon Inlet on 8 May. They found another pair on North Rock Island in Ocracoke Inlet on 5 June. Somewhat early, if fall migrants, were four seen by Merrill Lynch on 8 July at Jordan Lake.

ROSEATE TERN: The species was again seen in summer in the vicinity of tern colonies (of other species) along the North Carolina coast, with no evidence of nesting. An unbanded adult was seen at Cape Lookout point on 11 June by John Fussell and others, whereas a banded adult was there on 15 June (Jeff Cordes). At Cape Hatteras point, one was reported on 26 June by Frank Witchsky and Pat Moore.

FORSTER'S TERN: Herb Hendrickson saw two birds each on 23 June and 16 July at Lake Townsend near Greensboro.

SOOTY TERN: Three pairs were seen at Vera Cruz Shoal in Ocracoke Inlet on 5 June, and another pair was at Sand Bag Island at Cape Lookout on 1 June, as observed by James Parnell. One to two birds were again present in the tern colony at Cape Hatteras point but did not nest (fide Marcia Lyons); however, one of them was seen brooding a Black Skimmer chick on 21 July by Merrill Lynch, Harry LeGrand, and others. In South Carolina, two birds were seen on Kiawah Island on 3 June by David Chamberlain, and he saw one there on 5 August; and one was also noted on Raccoon Key on 24 May by Pete Laurie.

BLACK TERN: Apparently late spring migrants were 15 birds seen by John Fussell between Drum Inlet and Cape Lookout on Core Banks, N.C., on 11 June.

BLACK-BILLED CUCKOO: Mark Simpson had a number of reports of birds likely on breeding territory in the North Carolina mountains, where generally a rare nesting species. On 31 May, three were north of Haywood Gap (5200 feet) and one was at Steestachee Bald (5250 feet). Four were in the Rough Butt area at 5300 feet on 1 and 25 June, and two were at 4900 feet at Little Bald Mountain on 1 and 27 June. These sites are all near the Blue Ridge Parkway southwest of Asheville. A migrant was found dead at North Topsail Beach, N.C., on 3 June by Gilbert Grant (specimen to Coastal Carolina Community College in Jacksonville, N.C.).

WHIP-POOR-WILL: This species continues its apparent eastward spread in the breeding season. Near Camp Bryan in southern Craven County, N.C., Wade Fuller heard six Whip-poor-wills, but only two Chuck-will's-widows, on 7 July; the reverse ratio was present about five years ago, according to Fuller. Lex Glover saw and heard a pair from 24 June to 4 July at Jefferson, S.C., apparently near the edge of the range in that state.

ALDER FLYCATCHER: This species is expanding its breeding range in North Carolina, and Mark Simpson noted several birds in June and July along the South Fork New River in Ashe County.

WILLOW FLYCATCHER: Ramona Snavely and Kay Bergey reported on the continued nesting of this species in the Winston-Salem area. They noted five pairs, with nesting evidence seen for several, along Salem Creek between 16 May and 10 June. Herb Hendrickson noted one singing at the edge of a wet meadow near Osceola in northeastern Guilford County, N.C., on 8 and 15 June; however, it was not seen on later dates.

EASTERN PHOEBE: Anne Waters reported a confirmed nesting of phoebes near Belvedere, S.C., during the summer. Lex Glover reported nests under bridges at the following sites in northern Kershaw County, S.C., all on 4 June: at Road 59 and Beaver Dam Creek, at Road 59 and Cow Branch, at Road 621 and Little Flat Rock Creek, at Road 58 and Little Flat Rock Creek, at Road 58 and Flat Rock Creek, and at Road 40 and Grannies Quarter Creek. He also found a nest under a bridge near Westville, S.C., and under a bridge at SC 42 and Little Lynches River, both on 29 May.

HORNED LARK: Harry LeGrand had a good count for the coastal plain of 10 birds, nearly all singing males, on a BBS route from Rowland to Maxton, N.C., on 2 June. Also near the edge of the breeding range were four seen in fields near Broadneck Swamp in southwestern Bertie County, N.C., on 30 July by Merrill Lynch. Lex Glover saw and heard five birds at the Kershaw County, S.C., airport on 4 June, and he saw a female with three fledglings there on 2 July. Glover also noted a female feeding three fledglings at Jefferson, S.C., on 4 July.

TREE SWALLOW: At least two pairs presumably nested at Jordan Lake during the summer. Harry LeGrand saw adults regularly entering two cavities in dead trees in the water in late June; the birds were assumed to be feeding young. Reports from the North Carolina mountains documented the further spread of breeding in that region. Ben and Cathryn Sill noted that a pair nested in a martin gourd in Cowee Valley in Macon County in June; the birds also nested there in 1989. At least nine pairs nested in James Coman's bluebird boxes near Piney Creek in Alleghany County. Probably migrants in the lower coastal plain were on on 3 June near Southport, N.C. (Ricky Davis), 1200 on 5 July near Aurora, N.C. (Sam Cooper), and 4000 on 31 July at the latter site (Cooper).

CLIFF SWALLOW: Simon Thompson reported 40 birds, presumably nesting, at the NC 273 bridge over Lake Wylie, N.C., on 13 July. An intriguing report of one or two birds flying under a bridge at the Thorofare on Cedar Island, N.C., was made by John Fussell on 13 June; however, no birds were seen there on 25 June.

RED-BREASTED NUTHATCH: One bird on 1 July at Milepost 254.8 on the Blue Ridge Parkway in Ashe County, N.C. (Harry LeGrand) was well away from previously known breeding locales.

HOUSE WREN: John Fussell noted three singing birds along Millis Road in western Carteret County, N.C., on 2 July and a singing wren along Pringle Road several miles from the above site on 18 July. The habitats were recently-burned pocosins near savannas. Eloise Potter noted a singing bird at Zebulon, N.C., on several dates during the summer, plus another singing at Selma, N.C., on 2 June. In South Carolina, at least eight singing birds were in the Winnsboro area in June (Robin Carter); six were in town and two were in clearcuts north of town. Also in the latter state, Dennis Forsythe noted a singing bird along the Bowman BBS route in Orangeburg County on 15 June.

CEDAR WAXWING: There was a major "invasion" of breeding birds over much of North Carolina during the summer. Ricky Davis saw two adults feeding a young out of the nest in Zebulon from 7 to 14 June, two adults feeding a young out of the nest in western Rocky Mount on 4 July, two adults feeding a young on 28 June in northern Rocky Mount, and two adults carrying food to a tree in a yard in northern Nash County on 10 June. Simon Thompson found the birds widespread in the southwestern piedmont of the state in summer, with pairs seen regularly. He saw a pair with two fledged young in early July at Tryon; the nest was in a Virginia pine. He also found a pair on a nest in a white pine at Tryon on 14 July, a pair on a nest with young in a white pine in Cleveland County on 12 June, and a pair nest-building in early June near Lattimore in Cleveland County. Paul Hart had a number of summer records of adults at Raven Rock SP, and other observers also reported adults over much of that state's piedmont and coastal plain in June and July. Most notable was one seen at Piney Island in Carteret County on 26 June (John Fussell). There were no reports of nests from South Carolina, but adults were noted as follows: four at Congaree National Monument on 24 June (Robin Carter), one on 6 July at Ashwood (Lex Glover), and a small flock at the Riverbanks Zoo at Columbia on 9 July (Kevin Calhoon).

SOLITARY VIREO: This species is poorly known as a breeder over much of the piedmont. Herb Hendrickson found a singing male near Ellisboro, Rockingham County, N.C., on 26 June. Robin Carter found two singing males in mature loblolly pine plantations just south of Winnsboro, S.C., on 9 and 22 June, and he found another on the Salem Crossroads BBS in Chester County, S.C., on 24 June. Tim Kalbach reported that the species was "surprisingly abundant" in the western Good Hope area of Saluda County, S.C. He found the birds in open pines or mixed pine and oak woods; he also noted nest-building activities.

WARBLING VIREO: The singing male noted last year at the Bluff Unit of Santee NWR, S.C., returned in 1990. Tim Kalbach reported it on 3 June, and it was seen by other observers later in that month.

BREWSTER'S WARBLER: A most unusual record of this hybrid was one seen singing east of Aiken, S.C., on 10 June by Barny Dunning. The bird was likely a late migrant or a wandering male looking for a mate, as the species complex (Blue-winged and Golden-winged warblers) is not known to breed anywhere within 100 miles of this area.

CHESTNUT-SIDED WARBLER: Simon Thompson noted a singing male at Chimney Rock Park, N.C., on 3 June. He did not find the species on later dates at the park, and the bird was probably a wandering male.

CERULEAN WARBLER: A new nesting season locale for the species was reported by Mark Simpson from Blue Ridge Parkway Milepost 277, near Stony Fork Valley Overlook in eastern Watauga County, N.C. He found three singing birds on 23 June at an elevation of 3400 feet.

BLACK-AND-WHITE WARBLER: Along the southern edge of the breeding range were two singing on territory in the Green Swamp in Brunswick County, N.C., about 10 miles north of Supply. Jeremy Nance and Jeff Pippin found the birds on 9 June. Lex Glover observed a female agitated by an owl call on 4 June north of Camden, S.C., and he found the female feeding two fledglings at that site on 23 June.

SWAINSON'S WARBLER: Jeremy Nance reported a singing bird near a lake in western McDowell County, N.C., on 2 June.

OVENBIRD: Ricky Davis heard a singing bird just north of Southport, N.C., on 3 June. Lex Glover saw a bird on territory from 29 May to 4 June, plus an adult feeding two fledglings on 26 June, near Westville, S.C. Tim Kalbach found as many as four territorial males in June in the Emory area of Saluda County, S.C.

LOUISIANA WATERTHRUSH: At the southeastern edge of the breeding range, two birds were seen by John Fussell along Island Creek in Jones County, N.C., on 23 June; and one to two singing birds were noted by Wade Fuller in summer between New Bern and Riverdale in Craven County, N.C. Fuller has found a singing bird in this latter area each spring since 1986.

SCARLET TANAGER: Notable reports during the breeding season for South Carolina were two singing males and a female in northern Laurens County on 16 June (Peter Worthington), a male on territory throughout June near Emory in Saluda County (Tim Kalbach), and a singing male near Winnsboro on 20 June (Robin Carter). A non-singing male north of Southport, N.C., on 3 June (Ricky Davis) was somewhat out of range and perhaps was not on territory.

PAINTED BUNTING: Lex Glover saw a male at feeders in Lugoff, S.C., on 20 July, and he banded a hatching year bird there on the following day. This site is farther inland than the expected breeding range of the bunting, though the species has long been known to nest in the Columbia vicinity about 25 miles to the southwest of Lugoff.

DICKCISSEL: Always of note in the breeding season, the species was found on three occasions, all in the upper piedmont. Allen Bryan found four or five pairs in early June near Lattimore in Cleveland County, N.C. Simon Thompson reported three singing males from 12 June onward at this site. Thompson also saw a male near Reepsville, Lincoln County, N.C., on 21 June. Tim Kalbach observed an adult female and two fledglings on 4 July near Townville, S.C.

BACHMAN'S SPARROW: Tim Kalbach noted one on territory in a clearcut near Dyson, Greenwood County, S.C., during the summer.

GRASSHOPPER SPARROW: Five birds were found singing at two sites between Maxton and Rowland, N.C., on 2 June by Harry LeGrand. Also at the edge of the breeding range was a singing male found by Merrill Lynch at the Washington, N.C., airport on 30 July.

HENSLOW'S SPARROW: At a previously located breeding site, Lex Glover and Kevin Calhoon found at least six birds near Speed, N.C., on 30 July.

WHITE-THROATED SPARROW: Out of season were two reports of presumably wandering birds, as the species is not known to breed anywhere near North Carolina. In that state were single birds singing in a Raleigh yard on 22 June (Harry LeGrand) and near the Mount Pisgah picnic ground on the Blue Ridge Parkway at 5100 feet elevation on 25 June (Mark Simpson).

SHINY COWBIRD: This recent invader to the United States was seen for the second consecutive year in coastal South Carolina. Dennis Forsythe saw two males at his feeder on James Island between 3 and 24 June; and a male, perhaps one of the above two birds, was seen for about two weeks in July at Pete Laurie's feeder at Fort Johnson on that island.

NORTHERN ORIOLE: Simon Thompson provided numerous breeding season records for this species in Polk County, N.C., for the past two summers. In 1989, he saw a pair feeding young at Lake Adger, a nest with young along a river in the Pacolet Valley, an occupied nest at Tryon, a singing male on Warrior Mountain, a singing male at the Foothills Equestrian Nature Center, and a singing male at the Red Fox Country Club. In 1990, he found an occupied nest in the Pacolet Valley, a singing male again at the Nature Center, and a pair at Tryon. A female seen on 21 June in northern Laurens County, S.C., by Peter Worthington was an intriguing record, as this species is very rare as a breeder in that state.

RED CROSSBILL: Mark Simpson noted 23 birds, including both adults and immatures, at Carver's Gap on Roan Mountain, N.C., plus three other pairs on nearby Round Bald, on 17 June.

AMERICAN GOLDFINCH: Along the eastern edge of the breeding range were at least two pairs all summer at feeders in Lugoff, S.C. (Lex Glover); a pair at feeders near Mayesville, S.C., on 9 June (Evelyn Dabbs); five in eastern Jones County, N.C., on 11 June (Wade Fuller, Rich Boyd); and a male near Aurora, N.C., on 12 July (Sam Cooper).

BOOK REVIEWS

A FIELD GUIDE TO ADVANCED BIRDING

Kenn Kaufman. 1990. The Peterson Field Guide Series No. 39, Houghton Mifflin Co., 2 Park St., Boston, Massachusetts 02108. Illus. 299p. Paperback. $14.95

If you have ever been fortunate enough to bird with Kenn Kaufman, you have been impressed by his ability to identify difficult birds with ease. In this long-awaited Field Guide, Kaufman sets out the methods by which such identifications are made. After an introductory chapter which gives details of topography, molt, plumage, and basic rules of field identification, the book presents a series of chapters each on a hard-to-identify group. For each group, Kaufman discusses the basic identification problem, preliminary points (general range, size and seasonal changes, etc.) and field marks. The field marks are broken down into three major categories: absolute (i.e. Species A has an eye-ring and Species B does not), relative (i.e. Species A has a longer tail than Species B) and percentage field marks (i.e. Species A usually but not always has dark lores while Species B usually but not always does not). Among the groups discussed are: winter loons, Western Grebe complex, dark ibis, shorebirds, gulls, hummingbirds, *Empidonax* flycatchers, fall warblers and sparrows.

Every birder, whether beginner or expert, will benefit from a careful reading of this book especially the introductory chapter on the techniques of bird identification. I strongly recommend this to all who are interested in improving their bird identification skills.—Dennis M. Forsythe

THE ECOLOGY OF BIRD COMMUNITIES

John A. Wiens. 1990. Vol. 1, Foundations and Patterns, Cambridge Studies in Ecology. Cambridge University Press, 40 W. 20th St., New York, NY 10011. Illus. 539p. Hardcover. $80.00

John A. Wiens. 1990. Vol. 2, Processes and Variations. Cambridge Studies in Ecology. Cambridge University Press, 40 W. 20th St., New York, NY 10011. Illus. 539p. Hardcover. $65.00.

The study of bird communities has always been an area of active interest for avian biologists. In this two volume work, intended for upper-division undergraduates, graduate students and researchers, Wiens presents an up-to-date review of bird community ecology. Volume 1 in concerned with the history, methodology and patterns in community ecology; while Volume 2 discusses the processes causing the patterns. He also discusses the current and future directions of community ecology.

In Volume 1, Wiens traces the historical roots of bird community research with emphasis on the works of Robert MacArthur, who has been credited with transforming community ecology in the 1950s. MacArthur viewed communities as organized, integrated assemblages in which interactions and interdependencies among species produced structured community patterns. These were visualized by neat and simple theories usually accompanied by mathematical formulations. He viewed communities as being in equilibrium, and community patterns to result from deterministic processes, especially interspecific competition.

Chapters 2 and 3 deal with methodology. Wiens stresses the importance of separating community patterns from the processes creating them. Also he emphasizes the importance of experimental design, censusing techniques, hypothesis formulation and testing, and analysis of results. Many of the studies he reviewed were, in his opinion, flawed because of a lack of attention to methodology.

The rest of Volume 1 is a critical evaluation of community patterns, many of which are based on MacArthur's theories. Among the patterns discussed are: species-area relationships, species abundance, species diversity, niche theory, foraging guilds, ecomorphological patterns, distributional patterns, territoriality, resource use, character displacement and community bio-energetics.

Much of Volume 2 deals with the processes of bird communities. Wiens evaluates the importance of interspecific competition in producing patterns and finds little unequivocal evidence for such competition. He suggests that other factors such as predation, community history, and stochastic (i.e. chance) events may be as important as competition for determining community structure. He also evaluates community temporal variations and finds such a wide spectrum of patterns, that he feels the traditional view of communities in dynamic equilibrium to be unwarranted. Instead he believes temporal patterns should be studied using a variety of theories and hypothesis including: traditional equilibrium, dynamic resources tracking, ecological "crunch" scenarios and stochastic processes. Next Wiens demonstrates the need for recognizing and evaluating spatial patchiness and scaling in bird community studies.

Wiens concludes that although the MacArthur approach to community ecology contains numerous weaknesses, it was not a waste of time as it stimulated research on bird communities. But he argues for a new and more rigorous approach to community ecology. He gives seventeen points to consider in this new approach including: a more precise definition of community, de-emphasis on community macroparameters, use of resource-defined guilds, and conducting long-term observations and experimental studies.

These volumes are an important contribution to bird community ecology. They are well written with clear figures, understandable mathematics, and few typographical errors. I recommend these to serious undergraduates, graduate students and researchers. However, I am not convinced of their value to the average birder especially at the price.—Dennis M. Forsythe

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The Significance of the Central Coast of South Carolina as Critical Shorebird Habitat

CHRISTOPHER P. MARSH[1] & PHILIP M WILKINSON[2]

There has been increasing interest in monitoring populations of North American shorebirds (Charadrii) because several species appear to be experiencing significant population declines (Howe et al. 1989). Early in this century flocks of shorebirds were decimated by indiscriminate market hunting (Bent 1927, 1929), but present-day declines probably result from loss of critical habitat (Howe et al. 1989).

A major difficulty in detecting long term changes in shorebird numbers is obtaining accurate estimates of population sizes (Howe et al. 1989). Christmas Bird Counts provide data on winter distributions of shorebirds and their relative abundances in different parts of the country (Root 1988), but are of limited value in monitoring abundances on a local scale. Individual counts often differ dramatically from year to year because of differences in both weather and the quality of observer effort, masking all but the most dramatic population trends.

The central coast of South Carolina has long been recognized for its abundance of birdlife (Sprunt and Chamberlain 1970). Anecdotal accounts suggest that this region historically has been a major wintering site for several species of shorebirds. Most of this region, which is hereafter referred to as the Cape Romain-Santee Delta region, is protected as wildlife management areas or refuges. Root's (1988) summary of Christmas Bird Count data indicate that the region has exceptionally high concentrations of American Oystercatcher (*Haematopus pallidus*), Semipalmated Plover (*Charadrius semipalmatus*), and Black-bellied Plover (*Pluvialis squatarola*) compared to the rest of coastal North America. The purpose of this study was to make estimates of the numbers of migratory shorebirds using this region during the nonbreeding season (July-May). Such censuses had not been attempted earlier, and therefore provide important baseline data that can be used to follow future trends of local shorebird populations.

DESCRIPTION OF THE REGION

The Cape Romain-Santee Delta region (extending for approximately 75 km from North Inlet (near Georgetown) south to Caper's Inlet north of Isle of Palms) has received international recognition because of its expansive and diverse coastal habitats, and is now one of three units of the Carolinian-South Atlantic Biome Reserve, a part of UNESCO's Man and Biosphere Programme (Hopkins-Murphy 1989).

A series of uninhabited barrier islands along the outer coast are separated from the mainland by expansive salt marshes. The larger, older islands (North, South, Murphy, Bull, and Caper's I.) have stands of oaks (primarily *Quercus nigra*), loblolly pine (*Pinus taeda*), and cabbage palmetto (*Sabal palmetto*) along the remnant dune systems. A series of retreating, sparsely vegetated islands (Cape Island, Lighthouse Island, Raccoon Key, White Banks, and Marsh Island and formerly Bird Island prior to Hurricane Hugo) stretch south from the Santee Delta into Bulls Bay, and are included in the Cape Romain National Wildlife Refuge. The sand islands are separated from the mainland by approximately 5–8 km of saltmarsh and shallow bays, and are major nesting sites for large colonies of Brown Pelicans (*Pelecanus occidentalis*), Black Skimmers (*Rynchops niger*), Laughing Gulls (*Larus atricilla*), oystercatchers and Royal (*Sterna maxima*), Sandwich (*Sterna sandvicensis*), Least (*Sterna antillarum*), and Gull-billed (*Sterna nilotica*) Terns.

The wetlands of the region represent an interesting mosaic of pristine salt marshes and altered wetlands that were originally diked for cultivation of rice during the eighteenth and nineteenth centuries. The unaltered outer coastal wetlands consist of expanses of the saltmarsh cordgrass *Spartina alterniflora*, dissected by networks of tidal creeks and muddy bays. Brackish marshes characterized by needlerush (*Juncus roemerianus*) and tall cordgrass (*Spartina cynocuroides*) border Winyah Bay and extend up the Santee Delta for approximately 15 km. Most freshwater forests (primarily cypress *Taxodium distichum*) and moderately brackish (<15 ppt) wetlands in the region were converted to rice fields during the eighteenth and nineteenth centuries (Thompkins 1986) by diking, clearing trees, and using water-control structures to manipulate water level and salinity in the diked-in cultivated marsh. This created large expanses of wetlands with controlled water levels.

Approximately 4,300 hectares of former rice fields in the Cape Romain-Santee Delta Reserve are managed for waterfowl and other wildlife (Hopkins-Murphy 1989). Management practices (e.g. flooding schedules) differ depending on salinity and substrate, and types of vegetation and wildlife desired (Thompkins 1986).

The Cape Romain area and the Tom Yawkey Wildlife Center, were selected as sites for shorebird censuses because (1) both sites, historically, have been described as having large concentrations of shorebirds (Sprunt and Chamberlain 1970), and (2) they represent the two general types of wetland habitats regularly used by shorebirds: undisturbed tidal mudflats and managed, diked wetlands that are periodically drawn down to a shallow depth., respectively. In addition, the Yawkey center has restricted public access and therefore minimal human disturbance.

The Cape Romain census area which extends from Cape Island south to Dewee's Inlet (Fig. 1, see pp. 88–89), was selected because it represented a single, continuous system consisting of pristine *Spartina alterniflora* salt marsh interspersed with expansive shallow muddy bays with oyster (*Crassostrea virginica*) beds. The Santee Delta borders the area to the north, and the Charleston Harbor borders the area to the south. The census area includes the Cape Romain NWR (13,857 hectares), the Capers Island State Management Area (441 hectares), and the public salt marshes adjacent to Capers Island, Dewees Island, and the Isle of Palms (Sewee Bay, Mark Bay, Copahee, Bullyard, Hamlin, and Gray Sounds; approximately 9,000 hectares).

The Tom Yawkey Wildlife Center, including South Island, has approximately 8,000 hectares of marshes that are managed primarily for waterfowl.

At the Yawkey Center, the objective of the management scheme is to create large areas of open water that are colonized by ephemeral aquatic plants (e.g., widgeon grass *Ruppia maritima* and saltmarsh bullrush *Scirpus robustus*) that are preferred food of waterfowl, and to prevent the establishment of tall perennial marsh grasses (such as *Spartina alterniflora*). Typically, most managed marshes at the Yawkey Center are gradually flooded during the summer, and water is regularly flushed through the marsh to expose mosquito larvae to fish. Maintaining water circulation through the managed marsh also reduces the likelihood that algal blooms will occur. The water level is gradually drawn down during the winter months while waterfowl are present until it has been lowered to a depth of 5–25 cm. Water is flushed through the marsh at this shallow depth (hereafter referred to as sheet flow) during the spring, creating expansive areas of shallow water and mudflats suitable for shorebirds. In the early summer the managed marshes are subsequently drained for several weeks to ensure the bed of the marsh has a firm substrate for the preferred aquatic plants. Subsequently, the marshes are slowly reflooded, and the cycle is repeated.

CENSUS METHODS

The goal of this study was to estimate actual population sizes of target species. Therefore we attempted to census all areas within each study area rather than checking only selected sections. Initially designed to count larger species of shorebirds during winter 1988 (i.e., American Oystercatcher, Marbled Godwit, and Willet), the census methods were used to count all species of shorebirds using high tide roosts during the 1988-89 field season.

The most successful method for estimating numbers of most species of shorebirds in the Cape Romain region proved to be visiting all high tide roosts in the area by boat during a high spring tide. This protocol is similar to that used in the British surveys (Prater 1981, p. 119), with all counts being made within the four-hour period that the tide was the highest. At this time most of the marsh grass was submerged, and therefore shorebirds concentrated on the unvegetated islands and the oyster mounds, or rakes, bordering the Intracoastal Waterway. High tide roosts were located initially by aerial survey on 7 November 1987. The northern and southern sections of the Cape Romain region were censused within the same four-hour period by using two parties of observers. Route 1 censused a series of high tide roosts along the Intracoastal Waterway in the southwestern section of the study area, and hereafter is referred to as "the southwestern section" of Cape Romain. Route 2 surveyed the roost sites located on the northern barrier islands and those in Bulls Bay. Hereafter this is referred to as "the northeastern section" of Cape Romain (see Fig. 1). This included checking the beaches of Lighthouse Island and Raccoon Key for oystercatchers roosting on the beach by running the boat parallel to the shoreline just outside of the breakers.

During the first year of the study only the southwestern section was censused on 23 January 1988 and 16 and 17 April 1988. The December 1988 census differed from the other census dates in that the two routes were done on consecutive days rather than simultaneously. The northeastern section was done during excellent weather conditions on 22 December 1988, but the southwestern section was censused in dense fog the next day. On two dates (19 March 1988 and 7 April 1989) censuses were conducted, but ocean conditions were too rough for checking the ocean side of Raccoon Key, the longest barrier island in the study area.

A few areas in the Cape Romain region that were exposed during spring high tides were not censused regularly. The outer beaches of the forested islands (Bull, Capers and Dewees Islands) were not included because aerial surveys indicated that flocks of shorebirds did not roost in these areas during high tide. The outer beach of Cape Island, the northernmost barrier island in the study area, was checked infrequently because of the treacherous waters at the Cape, and because previous surveys indicated that no significant concentrations of shorebirds occurred here.

Birds within a flock were initially estimated by fives to obtain quickly an estimate of flock size in case the birds flushed prematurely. Next, birds were counted individually as a second estimate of flock size. Results from the two methods usually differed by less than five percent, confirming the accuracy of the first method. Large flocks were counted at least twice, and whenever possible, from at least two angles to help minimize underestimating the number of individuals in the interior of these flocks. We discovered that shorebirds on the back side of oyster bars often would move to the top where they could be counted if we approached the flock slowly, making the entire flock visible to the observer.

Census techniques used to monitor shorebird abundance at the Yawkey Wildlife Center differed from those used at the Cape Romain study area. Monthly counts were standardized by driving a regular route along the dikes bordering the marshes, and stopping at regular observation sites. Twelve of the 15 managed marshes were included in the census route. Three ponds were excluded because they had large areas of emergent plants with potholes and did not have large open areas suitable for shorebird habitat in them. Counts were conducted monthly from May 1988 through July 1989 except in December 1988 when the ferry to the Center was not working. All the marshes at the Yawkey Center were checked on each census date.

Censuses done at the Yawkey Center were conducted at a time when the tide was high in the tidal areas, thereby reducing the influence of tidal height on shorebird activity in managed marshes as was observed by Epstein and Joyner (1986). Managed marshes should experience the heaviest use by shorebirds during high tide because mudflats in the adjacent tidal marshes are submerged.

Several potential problems are associated with attempts to estimate total populations of shorebirds in the field. Inaccurate counts can result from errors in the observer's ability to estimate the number observed, as well as from an inability to find all the birds in the area (Prater 1981, p. 123). To minimize variability, our surveys were always run along the same route, and with few exceptions, had the same individuals making the counts.

When weather permitted, we attempted to replicate counts during the winter months to provide an estimate of variation in the count method. Replicate counts were possible during February 1988, March 1988, and January 1989. Variation between replicate censuses was expressed as a coefficient of variation corrected for bias due to small sample size (Sokal and Rohlf 1981, p. 59).

RESULTS AND DISCUSSION
SPECIES ACCOUNTS

American Oystercatcher (*Haematopus pallidus*)

The number and distribution of American Oystercatchers in the region fluctuated seasonally (Fig. 2). In 1988-89 the numbers of oystercatchers increased dramatically after the breeding season from 796 on 6 August 1988 to 1,949 on 13 October 1988. Accurate counts were not obtained during November and December because of inclement weather, but sometime during this period the numbers of oystercatchers in the study area increased to over 2,300. The numbers of oystercatchers declined during the late winter and spring to 653 birds on 8 May 1989. A shorebird survey was not conducted in June 1989, but a total of 171 oystercatcher nests were located in the area during Summer 1989 as part of the annual survey conducted by the S.C. Wildlife and Marine Resources Department. The shorebird survey conducted in late July 1989 found a total of 534 individuals, 9.5% of which were young of the year.

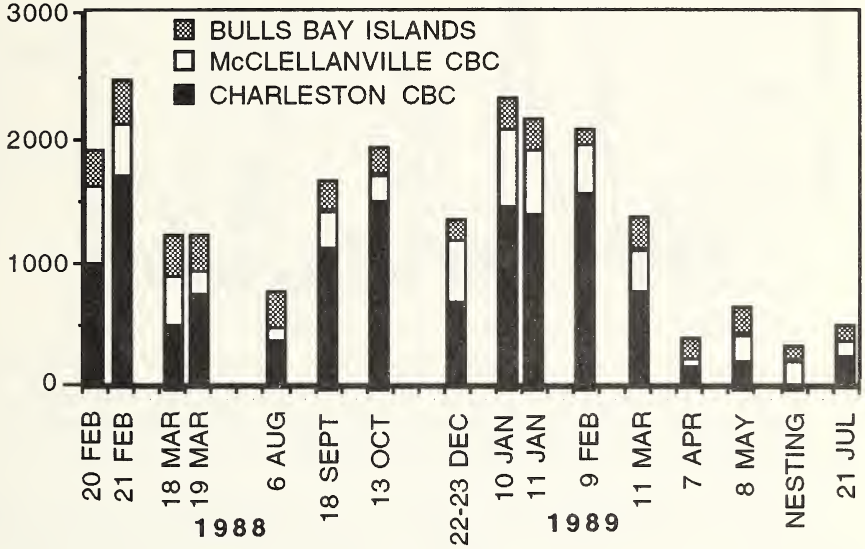


Fig. 2. Seasonal abundance of the American Oystercatcher in the Cape Romain region. The southwestern area includes all suitable oystercatcher habitat in the Charleston Christmas Bird Count circle; the northeastern area includes both the McClellanville Christmas Bird Count circle and the islands in Bulls Bay.

The numbers of oystercatchers in mid-winter in the Cape Romain area appeared to be similar in 1988 and 1989. The highest counts for the two years were 2,401 and 2,347, respectively; whereas the average of the winter counts for the two years were 2,190 (C.V.=15.3%) and 2,258 (C.V.=6.2%), respectively. The higher variation in 1988 was due to a low count (1,979) during a census made during marginal weather conditions when visibility was impaired.

Approximately three-fourths of the oystercatchers present at Cape Romain in winter used high tide roosts in the southwestern section of the area (Fig. 2). The largest high tide roosts were adjacent to Sewee Bay, Bullyard Sound, and Copahee Sound (see Fig. 1). In contrast, most nesting activity was on the northern barrier islands (= the McClellanville CBC area of Fig. 2), and, to a lesser extent, on the islands in Bulls Bay.

Our censuses confirmed the importance of the Cape Romain region as the major wintering site of American Oystercatchers in North America. Root's

(1988) analysis of Christmas Bird Counts indicated that Cape Romain NWR had the highest number of American Oystercatchers in North America during the winter.

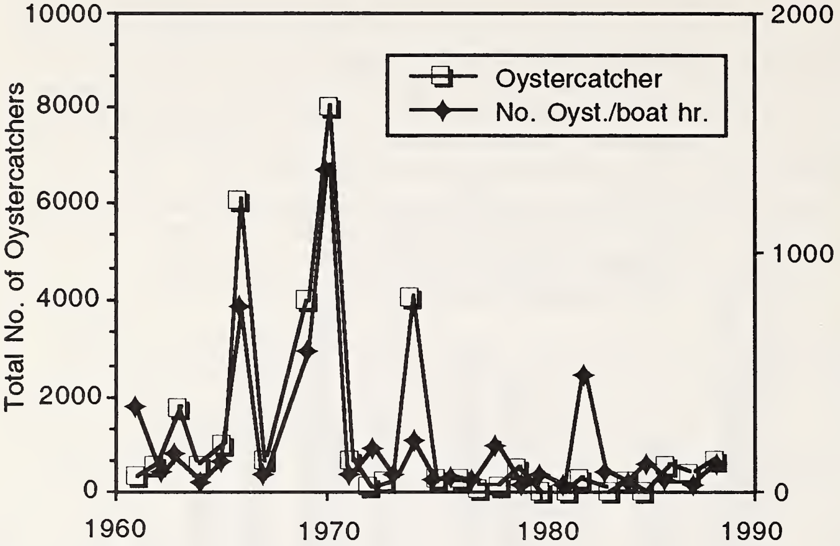


Fig. 3. Numbers of American Oystercatchers from 1960 to 1988 as determined by Charleston Christmas Bird Counts. The open squares denote total numbers of oystercatchers seen on the count, and the closed diamonds denote the number of oystercatchers seen per hour of boat time.

The actual size of the winter population of American Oystercatchers in the region prior to these surveys is enigmatic because the number of oystercatchers observed on past Charleston Christmas bird counts has varied drastically. During the period 1960 to 1988 oystercatcher counts ranged from 35 (1981) to 8,121 (1970) (Fig. 3). The possibility that oystercatchers were dramatically more common during 1966 to 1974 can not be ruled out since all the exceptionally high counts occurred during this nine-year period (6,069 in 1966, 4,057 in 1969, 8,121 in 1970, and 4,063 in 1974). These exceptionally high counts also were not correlated with observer effort. To examine this possible source of variation oystercatcher counts were standardized by dividing total number of oystercatchers seen on a count by observer effort (the number of hours observations were made by boat). These results showed the same general pattern except the period of peak oystercatcher numbers appeared to be from 1966 to 1970 only. Observer bias in estimating numbers of shorebirds was examined indirectly by comparing numbers of oystercatchers and dowitchers, the other most common shorebird present in this habitat, for each count (Fig. 4). In general, the numbers of oystercatchers and dowitchers appeared to be correlated except in 1970 when the highest number of oystercatchers were observed, but the number of dowitchers was lower than usual.

One of the difficulties in censusing oystercatchers in the Charleston Count

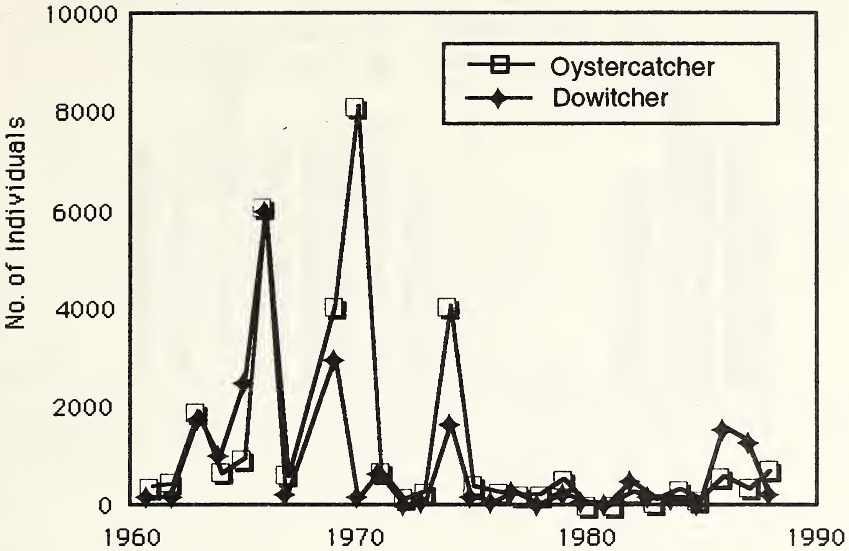
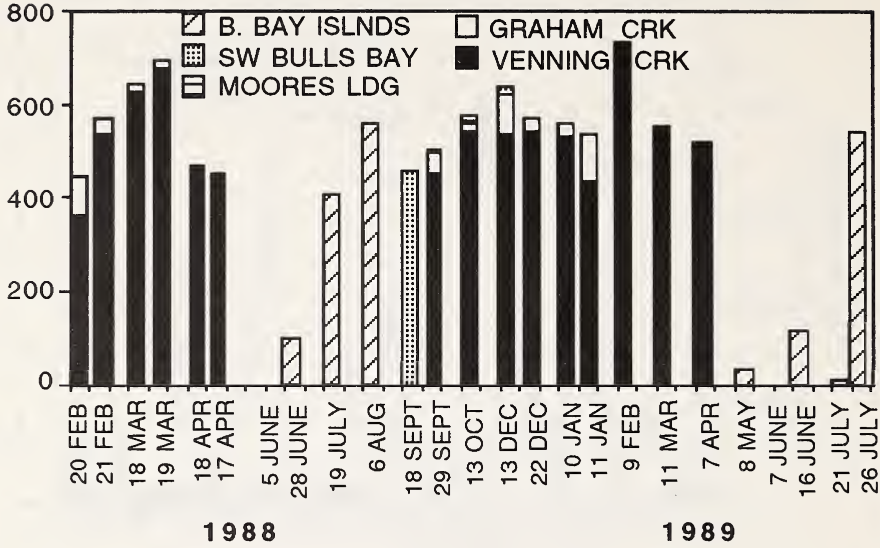


Fig. 4. A comparison of numbers of oystercatchers and dowitchers seen on the Charleston Christmas Bird Counts during 1960–1988.

Circle is that they are highly clumped during high tide, and all the major roost sites and feeding areas must be visited by boat. Consequently, during this study Christmas Bird Count totals were significantly less than the totals observed during the shorebird censuses. On 27 December 1987, 388 American Oystercatchers were observed on the Charleston Christmas Bird Count, whereas 1,004 and 1,701, respectively, were observed in February 1988 on our shorebird censuses. Similarly, 685 oystercatchers were observed on the December 1988 Charleston Christmas Bird Count, whereas 1,515 oystercatchers were present on 13 October 1988, and winter counts in this section were 1,457, 1,392, and 1,562 during January and February 1989. The similarity of the winter shorebird censuses suggests that the local winter population of oystercatchers was relatively stable, and that use of Christmas Bird Count data is not appropriate to monitor population trends in this area because of the area's inaccessibility.

Marbled Godwit (*Limosa fedoa*)

Although Marbled Godwits were common in the Cape Romain region, they were highly gregarious and localized during high tide. Godwits were only observed at seven high tide roosts during this study compared with American Oystercatchers being found at 23 high tide roost sites. Often all of the godwits in the region were found together in a single large flock during high tide (11 of 21 censuses with godwits). Only small flocks (<10 godwits) were observed on the outer islands during the winter, and no godwits were observed south of Price's Inlet in the vicinity of Bullyard or Copahee Sounds, suggesting that the latter area lacked suitable prey or feeding conditions required by Marbled Godwits.



Fig, 5, Numbers of Marbled Godwits at high tide roosts in the Cape Romain region. Note the seasonal shift from the Bulls Bay islands in late summer to the Venning Creek and Graham Creek roost sites in the winter and spring. Location of geographic names is depicted in Fig. 1.

The winter population of Marbled Godwits at Cape Romain was consistently over 500 individuals during 1988 and 1989, with the largest flocks being 670 individuals on 19 March 1988 (Venning Creek) and 735 individuals on 9 February 1989 (Venning Creek) (Fig. 5). These counts are much higher than the previous record high count of 200 godwits observed on the 1971 Charleston Christmas Bird Count (Post and Gauthreaux 1989).

Table 1. Counts of Marbled Godwits at Venning Creek

	Before High Tide[a]	After High Tide
21 Feb 1988	142	536
19 March 1988	485	670
16 April 1988	345	458
17 April 1988	369	453
13 Dec. 1988	365	518
11 March 1989	547	547

[a] Before-high-tide counts of Marbled Godwits were made 1 to 2 hours before high tide and after-high-tide counts were made 1 to 2 hours after high tide.

The location of the main flock during high tide shifted seasonally (Fig. 5). During the summers 1988 and 1989 godwits were only observed on the islands in Bulls Bay, but during the winter months all godwits roosted west of Bulls Bay, usually at the junction of Venning Creek and the Intracoastal Waterway. Godwits apparently congregated at this site because the adjacent tidal flat was one of the first feeding areas exposed by the receding tide. That the number of godwits at this high tide roost increased as the tide cycle progressed supports this hypothesis (Table 1).

Seventeen to 20 Marbled Godwits were present at the Yawkey Center during monthly censuses between January and April 1989. The low variation among these counts suggests that a flock of approximately 18 birds resided continuously at the Yawkey Center during this period.

American Avocet (*Recurvirostra americana*)

Avocet distribution was very localized. Individuals were observed only in managed marshes on South Island at the Yawkey Wildlife Center, where large numbers (>100) were seen on two of the managed marshes (Sand Creek Basin and Wheeler Basin) we censused (Fig. 6). It is not readily apparent why avocets prefer these two marshes; but these are the only two ponds at the Yawkey Center that have supported the aquatic muskgrass (*Chara hornemannii*) in the past, suggesting that there may also be invertebrate fauna that have a similar restricted distribution.

The highest counts of Avocets present at the Yawkey Center were 694 and 736 which occurred 24 January 1989 and 23 February 1989, respectively. The numbers of avocets present subsequently declined to 467 in March and 418 in April, and by mid-May only three birds were present. A lone individual was present on 16 June 1989. Nesting activity was not observed during summer 1989.

The status of the American Avocet in South Carolina has changed dramatically during the past century. This species nests in the western United States along alkaline lakes and typically winters along the coasts of Louisiana, Texas, and California (Johnsgard 1981). Prior to the mid-1900s sightings of the Avocet in South Carolina were unusual, but in the 1950s observations of Avocets became increasingly common, especially at South Island (Sprunt and Chamberlain 1970). The numbers of Avocets at South Island have increased from 50 individuals on 26 February 1952 to 600-1000 in February 1969 (Sprunt and Chamberlain 1970). Large flocks of avocets have been present at South Island from 1966 to the present (P. Wilkinson and R. Joyner, personal communication). Our censuses represent the first recent attempt to estimate the numbers of avocets present.

Willet (*Catoptrophorus semipalmatus*)

The peak numbers of Willets found in the region were 540 on 9 February 1989 and 569 on 11 March 1989 (Table 2). Although Willets are found throughout the region during the breeding season, most of the individuals observed on the shorebird counts during 1987-89 were in a single flock at the junction of Graham Creek and the Intracoastal Waterway (west of Bulls Bay).

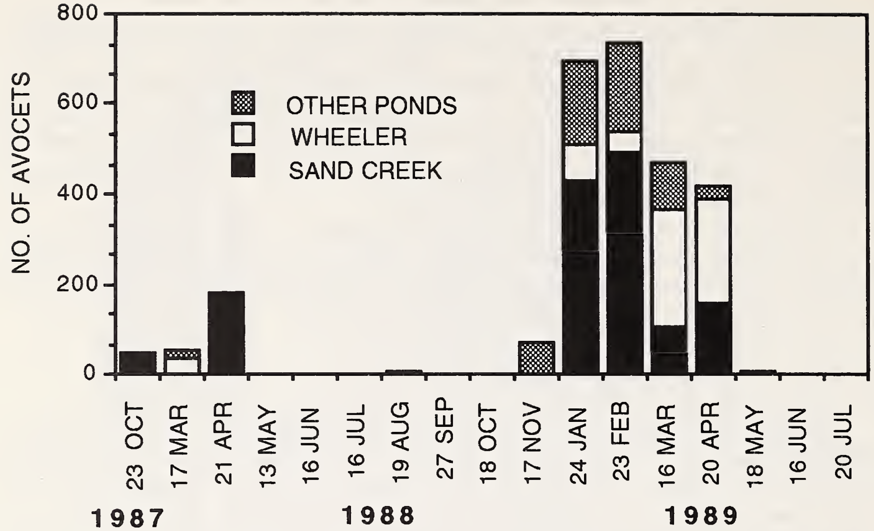


Fig. 6. Seasonal abundance of American Avocets at the Tom Yawkey Wildlife Center during the study period. Note that most avocets were observed in only two of the twelve managed marshes. Location of geographic names is depicted in Figure 1.

This roost site was used from September through March, with most counts ranging between 170 and 400 individuals. Other large concentrations of Willets were often associated with the large Marbled Godwit flock, e.g. 347 Willets were with the Marbled Godwit flock at Marsh Island on 6 August 1988. Unlike Marbled Godwits, however, small flocks of Willets did occur in the southern section of the study area in Bullyard Sound and at Dewee's Inlet.

Small numbers of Willets were regularly seen on South Island at the Yawkey Center. Most of the Willets seen were on Lower Reserve, a 128 ha pond that borders the North Santee, with the highest count being 66 individuals on 17 November 1988. Interestingly, few Willets were seen on ponds, such as Sand Creek Basin, that were used extensively by Avocets during the 1988-89 season.

Willets at the Graham Creek roost (Cape Romain) were only slightly smaller than the Marbled Godwits with which they associated, indicating that these individuals were of the larger western race (*C. semipalmatus inornatus*) which nests in the Great Basin region of the western United States (Hayman et al. 1986). Sprunt and Chamberlain (1970) also suggested that most Willets wintering along the South Carolina coast are *C. semipalmatus inornatus*.

Short-billed (*Limnodromus griseus*) and Long-billed Dowitcher (*L. scolopaceus*)

The Short-billed Dowitcher was one of the most abundant shorebirds in the Cape Romain region, with high winter counts of 2,370 on 11 January 1989 and 2,750 on 9 February 1989 (Table 2). We may have undercounted this species because flocks of dowitchers can be easily overlooked due to their cryptic col-

Table 2. Species totals for the Southwestern Section of the Cape Romain Region

	1988					1989						
	6 Aug	18 Sep	13 Oct	13 Dec	23 Dec	10 Jan	11 Jan	9 Feb	11 Mar	7 Apr	8 May	21 July
Willet	150	182	330	127	392	90	295	540	502	146	53	127
All Dowitchers	350	1635	1860	3635	2815	1410	1835	1745	1955	4350	2252	1109
Dunlin	0	0	0	600	475	120	40	625	685	N.C.	615	0
Black-bellied Plover	8	200	95	48	27	53	68	45	134	120	304	13
Semipalmated Plover	1	0	1	0	0	0	0	0	32	N.C.	1784	1
Ruddy Turnstone	15	50	0	1	14	0	6	5	48	20	60	0
Whimbrel	239	14	14	1	4	0	1	0	25	98	343	83

N.C. = no count

oration and their ability to roost on floating mats (wrack) of *Spartina* in the marsh.

Long-billed Dowitchers were only observed in the Cape Romain region on 21 July 1989 when approximately 30% of a flock of 330 dowitchers at Dewee's Inlet were identified by their heavily streaked breeding plumage and the characteristic staccato "keek" call given when they flew. Visual identifications of Long-billed Dowitchers in basic plumage were based on the presence of heavy barring along the entire length of the flanks that created a distinct vest-like pattern on the venter. Many dowitchers could not be identified to species because they were silent or too far away, and therefore conclusions about seasonal patterns of Long-bills is still preliminary. On all other Cape Romain surveys only the rapid, mellow three noted call of Short-billed Dowitchers were heard.

The distribution of dowitchers in the Cape Romain region was similar to oystercatchers and, like oystercatchers, the largest concentration during the winter occurred at Dewees Inlet. Other important roosting sites included Venning Creek (with the Marbled Godwits), Moore's Landing, Price Inlet, and, during migration, Marsh Island. The highest number of dowitchers was 4,350 individuals observed along the Intracoastal Waterway on 7 April 1989.

Both species were seen at Yawkey. Short-billed Dowitchers were abundant at Yawkey during the spring draw-down with peak counts occurring on 20 April and 18 May 1989 (3,265 and 3,241, respectively).

Apparently, Long-billed Dowitchers occurred at Yawkey primarily during the fall and winter. Sightings included 27 Sept.1988(16), 18 Oct. 1988 (21), 17 Nov. 1988 (1), 24 Jan 1989 (appr. 90), 23 Feb. 1989 (1 by call), and 18 May 1989 (1 by call).

Long-billed Dowitchers were most often observed in nontidal managed marshes at Yawkey, whereas Short-billed Dowitchers were regularly observed in both managed and unmanaged areas, an observation consistent with the conclusions of others (Hayman et al 1986, Johnsgard 1981).

Whimbrel (*Numenius phaeopus*) and Long-billed Curlew (*N. americanus*)

The Whimbrel was a common migrant in the salt marshes of the Cape Romain area, and a small number of individuals remained through the winter. Unlike other large species of sandpipers, Whimbrels often hid in clumps of grass during high tide, and therefore many individuals were probably overlooked. Thus, a high count of 483 Whimbrels on 17 April 1988 is probably a fraction of the total birds in the area (Table 2).

Whimbrels were present in the salt marshes at Yawkey, but seldom used the managed wetlands as feeding habitat during this study. On 18 and 25 May 1989 flocks of Whimbrels (13 and 38, respectively) were observed roosting in a pond adjacent to North Santee, but only one Whimbrel was ever observed feeding in a pond at the Yawkey Center (18 May 1989: Sand Creek Basin).

Approximately three to eight Long-billed Curlews were present at Cape Romain NWR during this study. Individuals were seen on 18 March 1988 (3), 15 September 1988 (8), 18 September 1988 (1), 29 September 1988 (2), 13 October 1988 (7), 22 December 1988 (4), and 9 February 1989 (8). This species is now considered a regular winter visitor at Cape Romain from late July through March (Potter et al. 1980).

Long-billed Curlews and Whimbrels had substantially different distributions at Cape Romain. Whimbrels were most common in the southwestern area, but occurred throughout the Cape Romain region during migration. Long-billed Curlews were only observed on the northern barrier islands (Cape Island, Lighthouse Island, Raccoon Key), and on Marsh Island in Bulls Bay. These islands were the only areas in the region with expansive sandy mudflats adjacent to inlets.

Greater Yellowlegs (*Tringa melanoleuca*) and Lesser Yellowlegs (*T. flavipes*)

Both species of yellowlegs were common on the managed ponds at Yawkey. Peak numbers of Lesser Yellowlegs were 854 and 796 individuals, respectively, on 20 April and 20 July 1989. Peak number of Greater Yellowlegs was 159 individuals on 20 July 1989. Our counts are substantially higher than previously reported sightings in the area (Table 3).

The number of Greater Yellowlegs present at the Yawkey Center was relatively constant (20-33 individuals) except in late fall when ponds were completely flooded and numbers dropped to 1-17 individuals. An exceptionally high count occurred on 20 April 1989 when 87 individuals were present (Fig 7). In contrast, the numbers of Lesser Yellowlegs increased slowly from 3 on 27 Sept. 1988 to 162 on 16 March 1989, and then jumped to 854 on 20 April 1989. In late summer the largest concentrations of yellowlegs were observed in Lower Reserve and Cooperfield Ponds. These two ponds differ from most of the other ponds at the Yawkey Center in that they are managed primarily for sea purslane (*Sesuvium maritimum*) rather than widgeongrass (*Ruppia maritima*) or saltmarsh bullrush (*Scirpus robustus*).

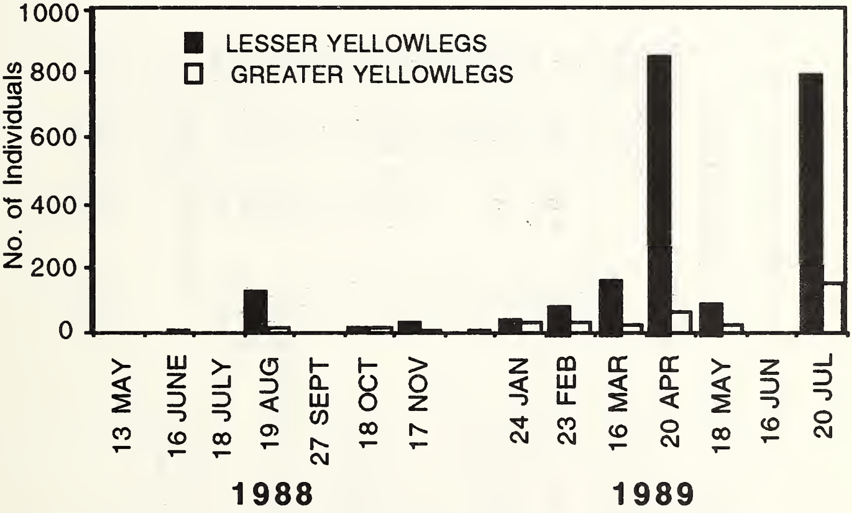


Figure 7. Numbers of Greater Yellowlegs and Lesser Yellowlegs seen at Tom Yawkey Wildlife Center during the study period.

Greater Yellowlegs were occasionally seen feeding in the Cape Romain

Table 3. Highest counts of each species observed during 1988-1989. Exceptionally high counts are bold-faced.

SPECIES	CAPE ROMAIN		YAWKEY CENTER		PREVIOUS HIGH COUNT IN S.C.[a]	
	Count	Date	Count	Date		
American Avocet		not observed	**736**	23 Feb 1989	600–1000	Yawkey Ctr.[b]
Am. Oystercatcher	2,482	21 Feb 1988	2	20 Apr 1989	8,121	Charleston CBC
	2,347	11 Jan 1989				
Black-bellied Plover	**304**	SW: 8 May 1989	73	18 May 1989	319	Litchfield CBC
Semipalmated Plover	**1,784**	SW: 8 May 1989	**1,719**	18 May 1989	1,300	Yawkey Ctr.
Ruddy Turnstone	60	SW: 8 May 1989	6	24 Jan 1989	1,000	Charleston Co.
Marbled Godwit	**670**	19 Mar 1988	19	24 Jan 1989	200	Awendaw
	735	9 Feb 1989	20	20 Apr 1989		
Whimbrel	483	SW:17 Apr 1988	38	25 May 1989	1,155	Awendaw
	351	SW: 8 May 1989				
Long-billed Curlew	**8**	NE:15 Sep 1988		not observed	recent-5	Cape Isl.
		9 Feb 1989				
Willet	**569**	SW:11 Mar 1989	66	17 Nov 1988	509	Awendaw
Short-billed Dowitcher	**3,635**	SW:13 Dec 1988	**3,265**	20 Apr 1989		no information
	4,350	SW: 7 Apr 1989	**3,241**	18 May 1989		
Long-billed Dowitcher	**110**	SW:21 Jul 1989	90	24 Jan 1989	100	SW Jasper Co.
Greater Yellowlegs	not observed in roosts		**159**	20 Jul 1989	41	McClell. CBC
Lesser Yellowlegs		not observed	**854**	20 Apr 1989	60	Clemson
			796	20 Jul 1989		
Red Knot	**3,200**[d]	NE:18 Sep 1988		not observed	2,030	Awendaw
	1,043	NE:12 May 1989				

Table 3. (cont.) Highest counts of each species observed during 1988-1989. Exceptionally high counts are bold-faced.

SPECIES	CAPE ROMAIN		YAWKEY CENTER		PREVIOUS HIGH COUNT IN S.C.[a]	
	Count	Date	Count	Date		
Dunlin	1,500[d]	NE:11 Jan 1989	**2,291**	18 May 1989	2,040	Litchfield CBC
Semipalmated Sandpiper	c		**35,100**[d]	18 May 1989	5,000	Yawkey Center
Western Sandpiper	c		651	16 Mar 1989	6,051	Awendaw
Least Sandpiper	c		44	20 Apr 1989	65	Yawkey Center
Pectoral Sandpiper		not observed	122	20 Jul 1989	55	Thomasville
Stilt Sandpiper		not observed	40	18 May 1989	40	Yawkey Center
			20	20 Jul 1989		
White-rumped Sandpiper		not observed	7	18 May 1989	35	Jasper Co.
Wilson's Phalarope		not observed	**10**	18 Jul 1988	3	Clemson
			9	20 Apr 1989		

a from Post and Gauthreaux (1989)

b from Sprunt and Chamberlain (1970)

c species was present, but was not counted (see text)

d numbers estimated by counting part of flock and extrapolating for rest of group

SW = Route 1; Southwestern Area
NE = Route 2; Northeastern Area

salt marshes but they were not observed in the high tide roosts during the Aug 1988-July 1989 surveys. We have seen Greater Yellowlegs roosting on floating *Spartina* wrack, and therefore counts at high tide roosts are probably an inappropriate method for censusing this species. Lesser Yellowlegs were only observed along the Santee Delta in areas of brackish shallow water, but were not seen in the Cape Romain salt marshes.

Red Knot (*Calidris canutus*)

Large flocks of Red Knots were observed on several occasions on the outer islands at Cape Romain during migration, but only a few individuals were seen along the Intracoastal Waterway. On 16 August 1988, 580 knots were counted on New Island (in Bulls Bay), and a dense flock estimated to be 3,100 individuals was discovered roosting on Marsh Island in Bulls Bay on 15 and 18 September 1988. On 12 May 1989, 1,043 Red Knots were counted as they fed on an exposed peat bed on the beach at Raccoon Key (Table 3).

Large flocks of knots have been observed in the region previously (Post and Gauthreaux 1989) suggesting that Cape Romain is an important staging area, or "refueling site," for this species (see Myers et al. 1987). Cape Romain may be a critical staging area for this species. Delaware Bay is the only other staging area on the eastern U.S. coast that has been described for this species. We do not know if the Red Knots that stage in the area belong to the population that winters in the southeastern U.S. (primarily Florida) or in eastern South America.

Semipalmated Sandpiper (*Calidris pusillus*) Western Sandpiper (*C. mauri*) Pectoral Sandpiper (*C. melanotos*) and Stilt Sandpiper (*C. himantopus*)

On 28 May 1989 an estimated 35,100 Semipalmated Sandpipers were observed on the managed ponds at Yawkey. Semipalmated Sandpipers were common on all eight of the twelve marshes that had extensive areas of wet mud, but approximately 70% of these birds were feeding in Wheeler Basin. Seven days later (on 25 May) only 85 Semipalmated Sandpipers were present at Yawkey. This decline was probably due, in part, to drier mud conditions and the timing of this species' migration.

Small species of *Calidris* sandpipers or "peep" were present on the ponds at Yawkey most of the year, except in fall when water levels were high. All peep closely observed on the January and February censuses were Western Sandpipers, and therefore we assigned all small gray peep seen on these censuses (225 and 320, respectively) to that species.

Stilt Sandpipers were regular spring and late summer migrants at Yawkey, with sightings on 19 August 1988 (1), 20 April 1989 (1), 18 May 1989 (40), and 20 July 1989 (20). The regularity of these sightings indicate that Stilt Sandpipers may be more common in the region than previous records suggest. A large flock of Stilt Sandpipers (up to 249) was also observed elsewhere directly north of the census area at a spoil area at Hobcaw Barony on the north side of Winyah Bay from 18 May to 24 May 1989 (W. Allen, S. Gauthreaux, and C. Marsh, pers. obs.)

Pectoral Sandpipers were most common during migration in the ponds managed for sea purslane, a vascular plant (10-15 cm in height) which requires a summer drawdown type of water level management. The highest count consisted of 122 birds (in flocks of 10-30) in Lower Reserve on 20 July 1989 when large expanses of sea purslane were slowly being reflooded after the summer drawdown.

Black-bellied Plover (*Pluvialis squatarola*) and Semipalmated Plover (*Charadrius semipalmatus*)

Plovers were censused on the southern route of Cape Romain because they could be seen easily on the oyster banks bordering the Intra-coastal Waterway, but were not counted on the northern route at Cape Romain because they often roosted on the upper beach or among the dunes of the outer islands away from the high tide roosts of other species. Individual birds in these habitats could not be censused reliably by observers in a boat bouncing in the surf. Consequently, counts of plover abundances at Cape Romain are underestimates. Piping Plovers, which only occur at sandy inlets, were not censused during this study.

Black-bellied Plovers were present at Cape Romain on all censuses (Table 2). This species is normally solitary, and most individuals roosted in small groups (5-15 birds). The winter counts (13 Dec. 1988 to 9 Feb. 1989) of the southwestern route ranged from 45 to 68 individuals except on the 23 Dec. 1988 when dense fog was present (Table 2). In contrast, the 1988 Charleston Christmas Bird Count recorded 12 Black-bellied Plovers. Black-bellied Plovers were most abundant on 8 May 1989 when 304 individuals were counted in high tide roosts along the Intracoastal Waterway.

Root's (1988) analysis of past Christmas Bird Counts indicated that Cape Romain had the highest concentrations of this species on the Atlantic Coast. Charleston Christmas Bird Count totals for Black-bellied Plovers during the years 1961-1988 ranged from eight (1972) to 821 (1965). Most of the exceptionally high counts of Black-bellied Plovers occurred during the 1960's and early 1970's (711 in 1964, 256 in 1961, 223 in 1970, 185 in 1975, and 179 in 1967), suggesting that numbers of Black-bellied Plovers in the area may presently be lower.

Semipalmated Plovers were not observed roosting on the oyster bars adjacent to the Intracoastal Waterway during the winter censuses, but three large flocks (498, 480, and 312) were observed on the 8 May 1989 census. Semipalmated Plovers were also abundant at Yawkey on 18 May 1989 (1,719 individuals). Totals for both areas were significantly higher than the previous highest count in South Carolina, an estimated 1,300 individuals at South Island (Yawkey) on 13 May 1984 (Post and Gauthreaux 1989) (Table 2).

The low number of Semipalmated Plovers at Cape Romain during the winter is contradictory to the conclusions of Root (1988). She determined this region to be one of the areas of high Semipalmated Plover density in the eastern United States. This discrepancy could be due to this species not using the high tide roosts, or its absence from the Cape Romain area during the winter of 1988-89 being atypical.

Wilson's Phalarope (*Phalaropus tricolor*)

The Wilson's Phalarope is a rare migrant along the South Carolina coast (eight previous sightings), but was observed on four occasions at Yawkey: seven individuals on 18 July 1988 (S. Gauthreaux and P. Wilkinson, pers. obs.), nine individuals on 20 April 1989, two individuals on 18 May 1989, and three individuals were observed by C. Marsh and L. Glover on 20 July 1989. These observations suggest that Wilson's Phalarope is a regular, but rare, migrant at Yawkey.

THE EFFECTIVENESS OF THE SHOREBIRD CENSUSES

The effectiveness of counts depended on the location, and habitat type. Counts conducted at Yawkey were more accurate than those at Cape Romain, because all sections of the former region were readily accessible by vehicle, and because all counts at the site were made with a spotting scope. In contrast, many of the counts at Cape Romain were made with binoculars from a moving boat.

At Cape Romain the most accurate counts probably were made of American Oystercatcher, Marbled Godwit, Willet, Short-billed Dowitcher, and Black-bellied Plover because these species were most visible and usually roosted in flocks on unvegetated, exposed bars. Counts were probably lower overall for species which did not congregate at high tide roosts, but roosted in stands of vegetation or on floating mats of dead Spartina grass (Whimbrels, Greater Yellowlegs, Dunlin, and Semipalmated Plover). Dunlin, Western and Semipalmated Sandpipers were probably the most often overlooked because of their small size and their reluctance to flush unless approached closely.

Most high-tide roosts at Cape Romain typically were associated with one of two habitats: (a) shallow, mud bays with expansive oyster beds and mudflats where shorebirds congregated on oyster rakes (elevated mounds of oyster shells), and (b) outer barrier islands where shorebirds congregated on sandy beaches or sand bars near an inlet. (A notable exception was the Graham Creek high tide roost where large numbers of Willets and Marbled Godwits roosted on a dock bordering the Intracoastal Waterway.) Flocks of shorebirds roosting on oyster rakes were usually easier to locate and count than those on barrier islands. Most oyster rakes are relatively small and localized, border deeper water (i.e., navigable creeks), and are surrounded by tidal marsh that is submerged during spring high tides. Consequently, during high tide these oyster rakes provide the only suitable high roost sites for shorebirds in Cape Romain's many expansive muddy bays, and therefore flocks of species (primarily American Oystercatchers, Marbled Godwits, and Short-billed Dowitchers) could be accurately censused.

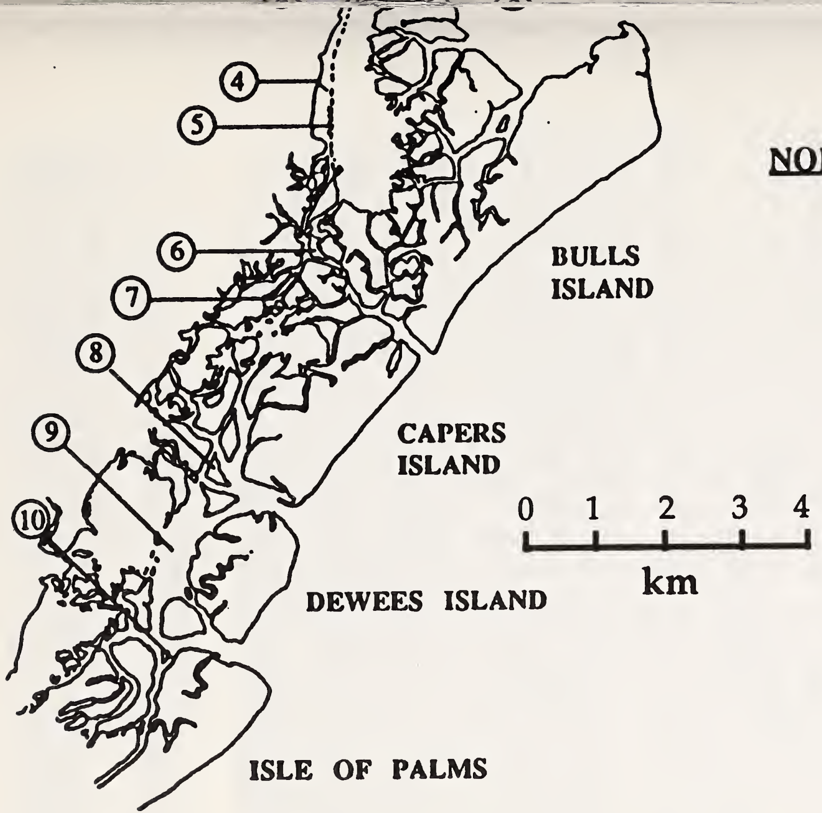
In contrast, flocks of cryptically colored shorebirds roosting on barrier islands were often hard to find and count from a boat. Beaches and sand flats of the barrier islands often could not be approached closely due to either shallow water or breaking waves. In addition, the roosting sites were not as localized, and flocks often did not use the same location during subsequent counts. Species most commonly associated with outer barrier islands included Dunlin, Western Sandpipers, Sanderlings, Red Knot and Black-bellied, Semipalmated, and Piping Plovers. The high variability of counts from the outer barrier islands suggests that coverage of these species was probably inadequate and that, to obtain more accurate censuses, this habitat should be censused by observers on foot or with bicycles rather than by boat.

SIGNIFICANCE OF THE CAPE ROMAIN-SANTEE DELTA AS SHOREBIRD HABITAT

Our study confirms the importance of the Cape Romain region and the Santee Delta as important habitat for migratory shorebirds and provides the first estimates of shorebird population sizes based on standardized census methods. These data indicate that the Cape Romain-Santee Delta Biosphere Reserve ranks as an important area for shorebirds on the eastern North American coast. We recommend that the area become part of the Western Hemisphere Shorebird Reserve Network (WHSRN). WHSRN is sponsored by the International Association of Fish and Wildlife Agencies and was established to encourage protection and management of areas that serve as critical "refueling sites" for migratory species of shorebirds (Myers et al. 1987). Reserves in this network are identified as being hemispheric or regional sites. Hemispheric sites are used by more than 250,000 birds or at least 30% of the flyway population of a species, whereas regional sites are used by more than 20,000 birds or at least 5% of the flyway population (Myers et al. 1987).

Table 4. Site-importance of Cape Romain and Yawkey Center during 1988-89

	Cape Romain		Yawkey Center
	Spring	Autumn	Spring
Am. Oystercatcher	73%	44%	0
Marbled Godwit	34%	34%	0
Whimbrel	19%	10%	0
Willet	9%	3%	0
Red Knot	1%	10%	0
Am. Avocet	0	0	5%
S.B. Dowitcher	14%	3%	10%
Semipalmated Plover	13%	0.04%	12%
Black-bellied Plover	2%	0.4%	0.4%
Semipalmated Sandpiper	0	0	8%
Dunlin	1%	0	3%
Lesser Yellowlegs	0	0	1%
Ranking Index	166	104	39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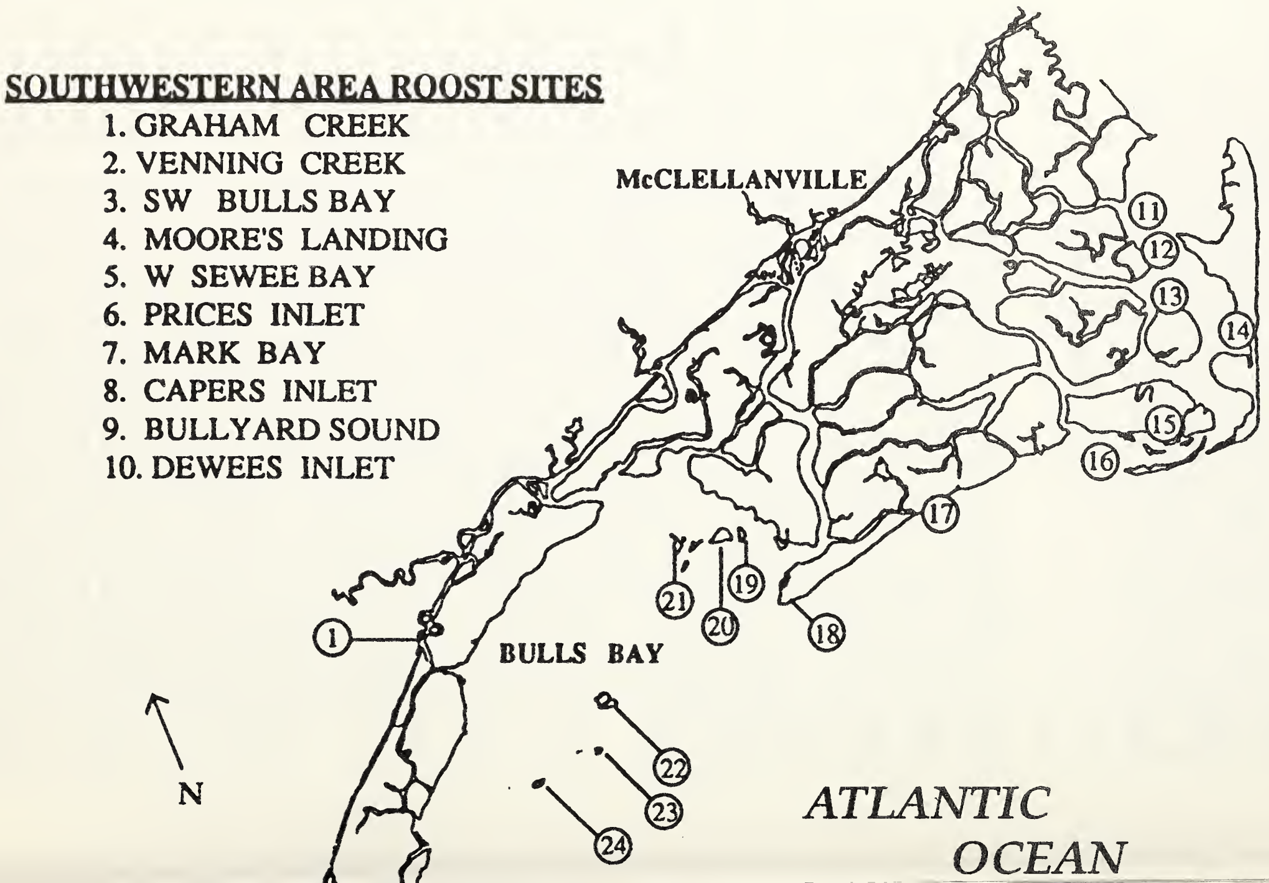
NORTHEASTERN AREA ROOST SITES

11. CASINO CREEK
12. DEEPWATER POINT
13. HORSEHEAD CREEK
14. CAPE ISLAND - WEST SIDE
15. LIGHTHOUSE ISLAND
16. KEY INLET
17. RACCOON KEY
18. SANDY POINT
19. EAST WHITE BANKS
20. MIDDLE WHITE BANKS
21. WEST WHITE BANKS
22. MARSH ISLAND
23. NEW ISLAND
24. BIRD ISLAND



SOUTHWESTERN AREA ROOST SITES

1. GRAHAM CREEK
2. VENNING CREEK
3. SW BULLS BAY
4. MOORE'S LANDING
5. W SEWEE BAY
6. PRICES INLET
7. MARK BAY
8. CAPERS INLET
9. BULLYARD SOUND
10. DEWEES INLET

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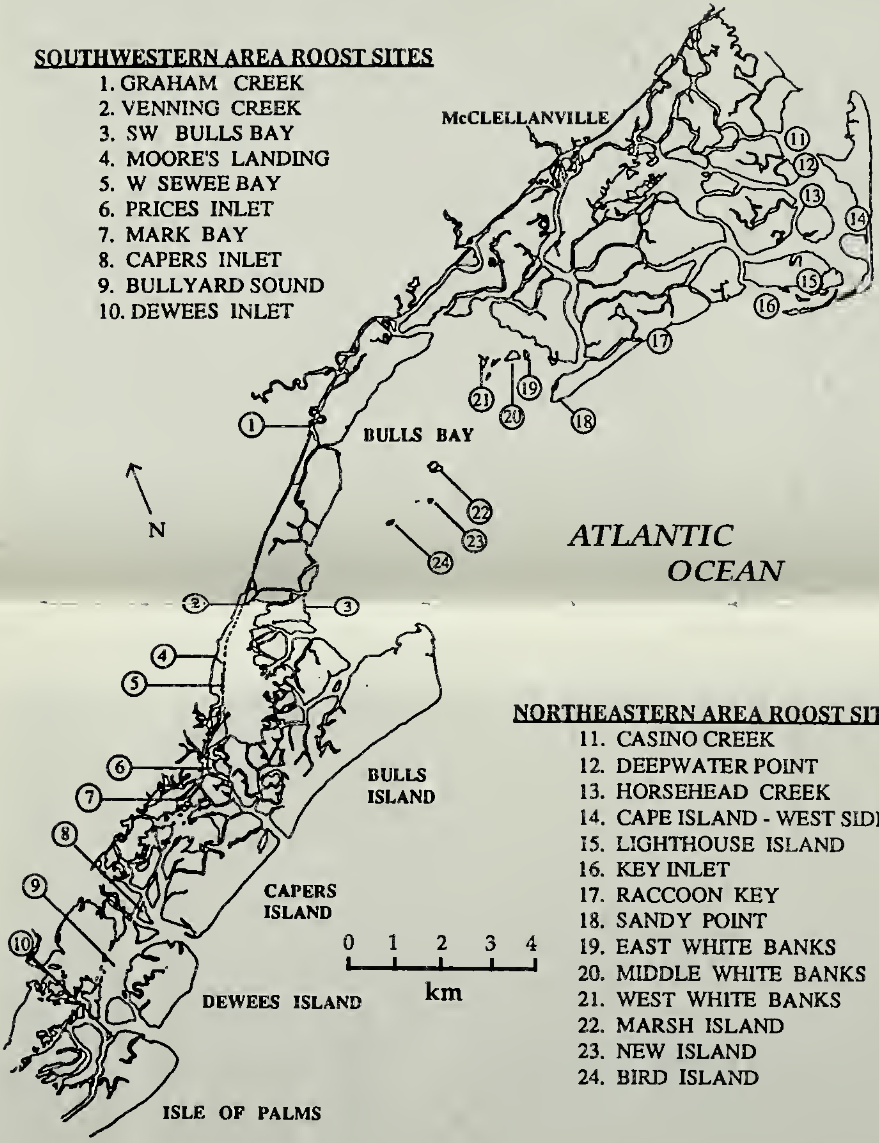
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SOUTHWESTERN AREA ROOST SITES

1. GRAHAM CREEK
2. VENNING CREEK
3. SW BULLS BAY
4. MOORE'S LANDING
5. W SEWEE BAY
6. PRICES INLET
7. MARK BAY
8. CAPERS INLET
9. BULLYARD SOUND
10. DEWEES INLET

NORTHEASTERN AREA ROOST SITES

11. CASINO CREEK
12. DEEPWATER POINT
13. HORSEHEAD CREEK
14. CAPE ISLAND - WEST SIDE
15. LIGHTHOUSE ISLAND
16. KEY INLET
17. RACCOON KEY
18. SANDY POINT
19. EAST WHITE BANKS
20. MIDDLE WHITE BANKS
21. WEST WHITE BANKS
22. MARSH ISLAND
23. NEW ISLAND
24. BIRD ISLAND

Harrington et al. (1989) calculated a "national season total" (autumn and spring) for each species by summing the highest counts made at each of 650 sites in the eastern United States during that season. The Cape Romain and Santee Delta totals were compared to the data provided by Harrington et al. 1989 by adding these two totals to the appropriate seasonal national totals, and then expressing each site's results as a proportion of the adjusted national total (Table 4). Using this criterion Cape Romain has over 30% of the flyway's American Oystercatchers and Marbled Godwits during Spring and Autumn, and therefore qualifies as a hemispheric reserve. In addition, it meets the criterion of over 5% for regional reserve status for five additional species (Whimbrel, Short-billed Dowitcher, Semipalmated Plover, Red Knot, Willet). The Yawkey Center qualifies as a regional reserve for four species: Semipalmated Plover, Short-billed Dowitcher, Semipalmated Sandpiper, and American Avocet.

The Cape Romain and Yawkey Center totals were added to the appropriate (autumn or spring) national totals as calculated by Harrington et al. 1989, and then expressed as a proportion of the adjusted national total.Harrington et al. 1989 ranked the importance of marine sites along the Atlantic Coast (U.S.A. only) that were included in the International Shorebird Survey. Ranking was based on the total of the scores (proportion of national total) for each species at the site. Using this criterion, the Cape Romain region spring index (166) was second only to Delaware Bay (307 in spring), and higher than that of Chincoteague, Virginia (157 in spring) and Monomoy NWR (140 in fall). Based on this method of site evaluation, the Cape Romain region is one of the most important shorebird refuges in the eastern United States.

Most of the Cape Romain region is protected as part of the Cape Romain NWR or the Capers Island State Wildlife Area. However, the western section of the area, which includes Dewee's Inlet and Copahee, Bullyard, Hamlin, and Gray Sounds, presently has status only as state waters and, therefore, is not guaranteed the same degree of environmental protection as the remainder of this region. This estuary system has the highest concentrations of American Oystercatchers and Short-billed Dowitchers during winter and spring, and inferential evidence suggests that flocks of shorebirds regularly move into this southwestern section from the remainder of the Cape Romain region during winter storms with strong northeastern winds. To better protect this area as shorebird habitat, we recommend that this western section (the 9,000 hectares of tidally flooded marsh between Hamlin Creek and Anderson Creek) be included as part of a Cape Romain-Santee Delta Western Hemisphere Shorebird Reserve.

ACKNOWLEDGEMENTS

The authors thank Mark Spinks, who assisted with all aspects of the study, as well as volunteers who assisted with the censuses: S. Gauthreaux, L. Glover, C. Grosso, J. Grosso, E. Haskin, V. Prevost, G. Reid, W. Reid, P. Sherengos, K. Werner, and M. Wilkinson. We also thank Keith Bildstein and Herb Hendrickson for their critical reviews of this manuscript. This research was supported financially by the South Carolina Wildlife and Marine Resources Department and the South Carolina Sea Grant Consortium.

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REQUEST FOR INFORMATION

I am writing a review about the hour of egg-laying of passerines. As published data on this topic are scarce, I would appreciate hearing from persons who have unpublished records on laying times that they would allow me to use with appropriate acknowledgements. The records should include species name, locality, date, estimate of hour of laying, and type of time used (e.g. Eastern Standard Time or Eastern Daylight Time in North America, or British Summer Time, etc.). Information on whether the observation was of the first, second, or third egg, etc., of the clutch would also be useful. Please write to David M. Scott, Professor emeritus, Department of Zoology, University of Western Ontario, London, Ontario, Canada, N6A 5B7.

CBC Rare Bird Alert
(704) 332-BIRD

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1990 unless otherwise indicated)

RED-THROATED LOON: Henry Link and Herb Hendrickson observed one on Lake Townsend near Greensboro, N.C., on 10 November.

COMMON LOON: One was early on the Asheville Reservoir near Black Mountain, N.C., on 22 September (Herb Hendrickson party).

EARED GREBE: Eric Dean noted the species again as a fall migrant on the water treatment ponds at Goldsboro, N.C. One bird was seen from 2 September to 26 October.

BLACK-CAPPED PETREL: Though regular off North Carolina, the species is rarely reported off South Carolina, mostly because the deep water favored by the species is difficult to reach by boat on a single-day trip. One was seen only 30 miles off of Charleston on 23 August by Todd Hass, Lex Glover, and others.

GREATER SHEARWATER: A good count was 62 birds, along with an excellent total of 1500 Cory's Shearwaters, off of Oregon Inlet, N.C., on 4 August (Merrill Lynch, Harry LeGrand).

CORY'S SHEARWATER: The best total for the fall off South Carolina was 50 seen by Dennis Forsythe off Charleston on 29 September.

BAND-RUMPED STORM-PETREL: Single birds were seen off Oregon Inlet, N.C., on 4 August (Harry LeGrand, Merrill Lynch) and 11 August (LeGrand et al.).

NORTHERN GANNET: Gilbert Grant found a sick or injured bird on Topsail Island, N.C., in late August (fide John Fussell).

AMERICAN WHITE PELICAN: One was present at Pea Island, N.C., from at least August into November, as observed by dozens of birders. Another was seen at the spoil area in southern Jasper County, S.C., on 12 November by Kevin Calhoon.

GREAT CORMORANT: Haven Wiley noted at least three on pilings in Oregon Inlet on 17 November.

AMERICAN BITTERN: Three birds were seen at Twin Lakes at Sunset Beach, N.C., on 2 August by Philip Crutchfield.

GREAT BLUE (WHITE) HERON: This color morph has been seen on a number of occasions in the Carolinas in recent years, and two more were noted this fall. Eric Dean carefully observed one at Cherry Hospital near Goldsboro from 8 to 26 August. At the spoil area in southern Jasper County, S.C., one was seen on 21 November by Dennis Forsythe, Donna Forsythe, and Margaret Jolly.

SNOWY EGRET: Locally rare was one at Lake Brandt near Greensboro from 7 August to 1 September (Herb Hendrickson), and one was late inland on 2 October near Zebulon, N.C. (Ricky Davis).

REDDISH EGRET: Bob Lewis observed a dark phase immature on 2 September at Oregon Inlet, for one of the few records for the Outer Banks.

CATTLE EGRET: A late inland bird was noted by Ricky Davis at Falls Lake in Durham County, N.C., on 14 October.

WHITE IBIS: Locally rare was an immature from 7 August to 1 September near Greensboro (Herb Hendrickson, Henry Link, Don Allen, Carolyn Allen).

GLOSSY IBIS: Notable inland were individuals at Goldsboro on 2 August (Gene Howe) and 20 to 26 August (Eric Dean), and at the western end of Lake Murray, S.C., from 12 to 15 September (Kevin Calhoon, Lex Glover).

GREATER WHITE-FRONTED GOOSE: The only report for the fall was one seen at Santee NWR, S.C., on 24 November by Roger McNeill and Roger Clark. McNeill noted that refuge personnel had seen the bird for the previous week.

SNOW GOOSE: Rare in inland South Carolina were two birds on Par Pond at the Savannah River Plant on 22 November (Peter Stangel).

BRANT: Though the species was "numerous" along the South Carolina coast last winter, one seen in Charleston harbor on 19 November was rare and early (Roger McNeill, Kevin Calhoon).

EURASIAN WIGEON: Very rare in South Carolina was a male seen at Savannah NWR on 22 and 23 November by Anne and Vernon Waters. Ricky Davis observed a female on 16 September at Pea Island, noting that "the chestnut color of body and head was very different" from the female and eclipse males of the surrounding American Wigeons. Male Eurasians in North Carolina were at Bodie Island on 10 November (Todd Hass, Joe Poston, Haven Wiley), at Lake Mattamuskeet on 17 November (Herb Hendrickson et al.), and at Pea Island on 25 November (Mike Tove).

GREATER SCAUP: The only inland report for fall was one seen at Goldsboro on 24 November by Eric Dean.

COMMON EIDER: Definitely out of season was an immature male noted by Paul DuMont from 15 to 19 August at Oregon Inlet.

HARLEQUIN DUCK: At a possibly regular wintering locale, a female was seen by Leonard Pardue at Oregon Inlet on 25 November.

SURF SCOTER: One of the most remarkable inland records for any scoter was an adult male Surf seen in a flooded field along US 601 about 3 miles south of St. Matthews, S.C. Roger McNeill found the bird on 28 October, and Lex Glover saw it two days later. An outstanding inland count was eight, all adult males, seen by Paul Saraceni on Jordan Lake on 24 November. Also at Jordan Lake was a female or immature on 4 November (Henry Link, Harriet Sato, et al.).

COMMON MERGANSER: The two immature birds seen at Jordan Lake during the summer were last reported on 7 September, by Paul Saraceni.

RUDDY DUCK: Bob Holmes observed an early individual at New Bern, N.C., on 25 August.

TURKEY VULTURE: This species is a rare fall migrant along the Outer Banks; thus, one was notable and late at Buxton, N.C., on 8 December (Marcia Lyons).

MISSISSIPPI KITE: One was seen on 29 September about 7 miles northeast of Brevard, N.C., in the Mills River valley by Harold Winninger (fide Porge Buck).

COOPER'S HAWK: Norma and Bill Siebenheller found an active nest near Calvert in Transylvania County, N.C., during the summer. Three young were fledged. Another pair was seen along the western edge of nearby Brevard for many weeks during the summer (Betty McIlwaine, Charles

Johnson).

BROAD-WINGED HAWK: Jim Mulholland provided convincing details on an immature seen perched and in flight south of Raleigh, N.C., on the very late dates of 30 November and 1 December. Two were rather rare at Wilmington, N.C., on 1 September (Sam Cooper).

ROUGH-LEGGED HAWK: Eric Dean observed one soaring south of Goldsboro on the early date of 29 October.

MERLIN: Inland reports for the fall season were of single birds on 7 October near the Raleigh-Durham Airport (Robert Raffel, Eric Dean), on 8 October at Raven Rock SP, N.C. (Paul Hart), and in November in Pisgah Forest, Transylvania County, N.C. (Norma and Bill Siebenheller).

PEREGRINE FALCON: One seen by Angela Elmore at Pea Island was somewhat early on 22 August. Inland sightings, all in North Carolina, were on 23 September at Goldsboro (Gene Howe), on 2 October near Red Oak (Ricky Davis), and on 28 October near Comfort in Jones County (Harry LeGrand, John Fussell).

BLACK RAIL: Steve Thomas flushed one from grasses near ponds at Brookgreen Gardens in Georgetown County, S.C., on 28 October.

CLAPPER RAIL: A migrant was found injured in Goldsboro on 23 August by Eric Dean, who believed the bird collided with wires during the previous night.

KING RAIL: One was found dead at Greenville, N.C., on 25 August by Veronica Pantelidis.

VIRGINIA RAIL: Haven Wiley saw one on 1 December at Mason Farm near Chapel Hill, N.C. The species is not known to winter in that area, but the species is regular on Christmas counts at nearby Raleigh and thus might overwinter in the eastern piedmont.

COMMON MOORHEN: This species is a rare migrant in the piedmont; thus, notable was an immature found dead in Greensboro on 13 October by Bill Craft. The bird is now a specimen at the University of North Carolina at Greensboro.

BLACK-BELLIED PLOVER: The species was found inland in North Carolina at Goldsboro, Falls Lake, and Brier Creek Reservoir (near the Raleigh-Durham Airport). The better counts were five at Goldsboro on 14 October (Eric Dean) and three at Falls Lake on 14 October (Ricky Davis).

LESSER GOLDEN-PLOVER: All fall reports came from North Carolina. Inland records were 11 at Falls Lake on 14 October (Ricky Davis), two at Brier Creek Reservoir on 15 September (Todd Hass et al.), two at Goldsboro on 19 September (Eric Dean), and single birds at Jordan Lake from 7 to 9 September (Paul Saraceni et al.), at Goldsboro from 30 September to 2 October (Dean), and at Greensboro from 27 to 29 September (Henry Link, Herb Hendrickson). The only coastal reports came from Cape Hatteras point between 19 August (Paul DuMont) and 4 October (Marcia Lyons), with a peak of three on 28 September (Lyons).

AMERICAN AVOCET: Excellent finds inland were two avocets at Goldsboro on 6 August (Eric Dean), with one present there on 12 September (Dean, Gene Howe). The large flock at the spoil area in southern Jasper County, S.C., reached a total of 355 birds on 17 November, as counted by Robin Carter, Caroline Eastman, and Alistair Smith.

LESSER YELLOWLEGS: Rather late inland was one seen on 24 November by Eric Dean at Goldsboro.

WILLET: Always a good find inland were single birds noted by Gene Howe and Eric Dean at Goldsboro from 31 August to 10 September and by Dan Connelly at the Silver Bluff Sanctuary in Aiken County, S.C., on 20 October.

UPLAND SANDPIPER: The majority of the fall migration occurs along the coast, where the best count was six birds at the Manteo, N.C., airport on 10 August (Todd Hass, Roger McNeill). Good inland counts were three each at Greenville, N.C., on 1 August (Russ Tyndall) and at Goldsboro on 7 August (Eric Dean).

LONG-BILLED CURLEW: Seldom found in recent years at Oregon Inlet, one was present there on 29 September, as seen by Ned Brinkley. The "usual" wintering bird at Fort Fisher, N.C., was first observed during September by Sam Cooper.

HUDSONIAN GODWIT: Completely unprecedented was a flock of 15 birds seen rising from the ocean and in flight on 25 August, perhaps 20 miles northeast of Oregon Inlet on 25 August (Ricky Davis et al.). One was very unusual inland at Lake Mattamuskeet on 11 November, as observed in detail by Haven Wiley and Todd Hass. Two were noteworthy on 4 September at Cape Hatteras point (Rich Boyd, Bob Holmes), and there were the usual handful of sightings from Pea Island, where the best count was three on 31 August (Bob Lewis).

RUDDY TURNSTONE: Good inland counts were six at Lake Brandt near Greensboro on 16 September (Herb Hendrickson) and four at Goldsboro from 14 to 19 September (Eric Dean). Singles inland, all also in North Carolina, were at Jordan Lake on 3 September (Rob Gluck), at Brier Creek Reservoir on 11 September (Derb Carter), and at Lake Townsend near Greensboro on 29 September (Hendrickson).

RED KNOT: Very rarely found inland was one seen well at Brier Creek Reservoir on 30 September by Harry LeGrand.

SANDERLING: Regular but uncommon as an inland migrant, the better counts were a peak of 15 at Goldsboro on 19 September (Eric Dean) and four near Pactolus in Pitt County, N.C., on 29 September (John Wright).

SEMIPALMATED SANDPIPER: Robin Carter carefully identified four individuals on 17 November at the spoil area across the Savannah River from Savannah, Georgia, for a very late South Carolina record.

WESTERN SANDPIPER: Eric Dean observed a very late inland bird, in comparison with Least Sandpipers, on 22 November at Goldsboro.

WHITE-RUMPED SANDPIPER: Although locally fairly common along the coast in fall, a tally of 40 at Cape Hatteras point on 26 August was surprising (Harry LeGrand, Ricky Davis). The only inland report was one to two at Goldsboro from 26 August to 24 October (Eric Dean).

BAIRD'S SANDPIPER: This was one of the poorest fall migrations detected for the species in the past decade. The only reports were of two seen at Cape Hatteras point on 4 September (Rich Boyd, Bob Holmes) and one there on 16 September (Ricky Davis).

DUNLIN: The best inland count was 11 on 24 November at Goldsboro, as seen by Eric Dean.

CURLEW SANDPIPER: The last date for the species at South Pond on Pea Island was 12 August, when one was observed by Harry LeGrand and Mike Tove.

STILT SANDPIPER: Late individuals near the coast were singles seen on 11 November by Ricky Davis at Lake Mattamuskeet and on 21 November by Dennis Forsythe at the spoil area in southern Jasper County, S.C. A good count of 15 birds was at the latter site on 17 November (Robin Carter). The best inland totals were ten at Goldsboro on 11 October (Eric Dean) and seven at Brier Creek Reservoir on 2 October (Todd Hass, Joe Poston).

BUFF-BREASTED SANDPIPER: Disappointingly, there were no inland reports for the fall season, and the only sightings came from the Outer Banks. One to two birds were seen at Cape Hatteras from 31 August to 4 September (Marcia Lyons et al.), and two were at Pea Island on 9 September (Mike Tove, Harry LeGrand).

WILSON'S PHALAROPE: Eric Dean saw birds at Goldsboro from 30 August to 15 October, with two there from 12 to 19 September. The only other inland report was of one bird at Jordan Lake on 8 September (Henry Link, Chapel Hill Bird Club). Besides numerous records from Pea Island, one was at Morehead City, N.C., on 25 and 26 September (John Fussell).

RED-NECKED PHALAROPE: Bob Lewis saw an onshore individual at South Pond on Pea Island on 31 August. A good South Carolina count of 15 was made by Todd Hass and party off Charleston on 23 August; the peak count in North Carolina was 89 off Oregon Inlet on 1 September (Paul DuMont).

RED PHALAROPE: Much rarer than the other phalaropes onshore, an individual of this species was observed by Graham Dugas and many other birders on the beach at Hilton Head Island, S.C., from 21 to 26 October. [Photos were sent to this editor for additional corroboration.—HEL] Roger McNeill and Kevin Calhoon saw five Reds plus a number of other phalaropes too distant to identify on a pelagic trip off Charleston on 19 November.

LONG-TAILED JAEGER: The only report for the fall was one seen off Oregon Inlet on 1 September by Paul DuMont and party.

LAUGHING GULL: Eric Dean observed one at Goldsboro on 10 and 22 November.

COMMON BLACK-HEADED GULL: The bird that wintered at the Morehead City sewage treatment plant last year returned this fall. The adult was first noted by Paul Saraceni on 27 October.

ICELAND GULL: Infrequently seen before the Christmas counts was an individual, an immature, at the north end of Pea Island on 25 November (Mike Tove).

LESSER BLACK-BACKED GULL: Notable for South Carolina were an adult and an immature at Folly Beach on 22 November, as observed by Robin Carter, Dennis Forsythe, and others. Of the handful of coastal North Carolina reports, the earliest was one seen at Cape Hatteras point on 28 October by Derb Carter.

GREAT BLACK-BACKED GULL: Two seen by David Chamberlain at Kiawah Island, S.C., on 25 August were notable in summer for that state.

BLACK-LEGGED KITTIWAKE: Ned Brinkley saw a kittiwake on a pelagic trip off Hatteras on 2 October.

CASPIAN TERN: The best inland counts for the species were eight, at both

Greensboro on 2 September (Stan Gilliam) and Goldsboro on 23 September (Gene Howe).

ROSEATE TERN: One was observed from 31 August to 3 September at Cape Hatteras point by Paul DuMont and others.

COMMON TERN: The best inland count was eight Commons, along with two Forster's, noted by Ricky Davis on 9 September at Jordan Lake.

ARCTIC TERN: Two were reported, without details, on a pelagic trip off Oregon Inlet on 1 September by Paul DuMont and party. [Mike Tove has recently re-examined photos he took of a supposed Arctic Tern seen on a pelagic trip off Hatteras on 2 September 1979 (Chat 44:49). Two other Arctic Terns were reported on that trip. He reports that there is a black wedge in the primaries of the bird in the photo, indicating to him that the bird was a Common Tern. Although there are numerous sight records, plus good documentation, for Arctic Tern in the spring off North Carolina, documentation of fall migrants has been very poor, with just a handful of sight records and few if any specimens or photos. Perhaps the fall migration occurs farther to sea than does the spring migration, for despite the great abundance of the species, and despite perhaps twice as many birds migrating south as migrating north (as a result of successful reproduction), the species is very poorly known in autumn. Common Terns are very numerous on fall pelagic trips, and a few Arctics could easily be overlooked among them. However, dozens to hundreds of pelagic trips have been made by Dave Lee and other birders from August to October, and despite such coverage, Arctics seem to be genuinely rare in the fall season. Observers should provide full details for any Arctic Tern reports, especially in the fall and in South Carolina, where still considered Hypothetical (Post and Gauthreaux, 1989, *Status and Distribution of South Carolina Birds*).—HEL]

FORSTER'S TERN: Very good inland totals included 20 seen at Greensboro on 20 October by Henry Link and Herb Hendrickson, and 16 seen at Jordan Lake on 6 August by Paul Saraceni.

LEAST TERN: Although the species ranges throughout much of the tidewater parts of North Carolina in summer, somewhat "inland" were 20 seen in Pitt County on 4 August by John Wright.

BRIDLED TERN: A tally of 15 in the "cold" water northeast of Oregon Inlet on 8 September (Mike Tove, Harry LeGrand) was notable, as was a count of 65 seen in the Gulf Stream southeast of that inlet on 1 September (Paul DuMont). Several were seen off Charleston on 23 August by Todd Hass and party.

SOOTY TERN: Normally uncommon in summer and early fall, the species was quite numerous on several pelagic trips. Most surprising was a tally of 81 Sooties, all adults, as opposed to just three Bridled Terns, seen off Oregon Inlet on 11 August (Mike Tove, Harry LeGrand, et al.); and a good South Carolina tally of 12 adult and one immature Sooty Terns was made on 23 August (Todd Hass, Lex Glover, et al.).

BLACK TERN: Paul Saraceni had a notable inland tally of 17 birds at Jordan Lake on 6 August, and two others were very late on 20 October at Bodie Island, N.C. (Ricky Davis).

WHITE-WINGED DOVE: Steve Compton observed an individual at close range in his yard in Charleston from 11 to 13 November for approximately the sixth South Carolina record. [A corroborating photo was examined by this editor.—HEL]

BLACK-BILLED CUCKOO: James Coman observed one in northwestern Alleghany County, N.C., on 15 September, and another was banded near Mayesville, S.C., on 1 October by Lex Glover and Evelyn Dabbs.

NORTHERN SAW-WHET OWL: Steve Patterson Jr. provided a number of previously unpublished records for this species in northwestern South Carolina. In 1985, the species was heard calling on the Erskine College campus in Due West on six dates between 26 February and 13 March, being seen on one date. He heard the species at the campus in 1986 from 25 January to 17 March. In 1987, he heard one calling at Lake Hartwell on 23 March and at Antreville on 25 April. In 1989, one was seen on 15 April on the college campus. The records represent at least two individuals on the campus.

RUFOUS HUMMINGBIRD: George Ellison and others observed an adult male at the feeder of Don Van Anglen in Maggie Valley, N.C., from 4 to 13 November. [Ellison provided a color photo to the editor for documentation. —HEL] Fran Irvin saw an immature male of this species feeding on flowers in her yard south of Raleigh on 13 October. A female or immature, not positively identified to species, but clearly a *Selasphorus* hummingbird, was seen daily at the feeder of Berma Foster in Winston-Salem from 30 November into December. Ramona Snavely, Kay Bergey, Hop Hopkins, and others also saw this bird.

OLIVE-SIDED FLYCATCHER: This elusive migrant was seen in fall only by Sam Cooper, who noted one along South Creek north of Aurora, N.C., on 8 October.

YELLOW-BELLIED FLYCATCHER: One was somewhat out of habitat at Oregon Inlet, where Ricky Davis and Harry LeGrand saw one on the catwalk and rocks at the bridge on 26 August. The only other sighting was one seen north of Aurora, N.C., by Sam Cooper on 25 September.

WILLOW FLYCATCHER: Though probably not rare in much of the region as a fall migrant, individuals are usually silent and nearly impossible to identify except in the hand. Fortunately, Lex Glover and Evelyn Dabbs banded and measured one near Mayesville, S.C., on 25 September.

LEAST FLYCATCHER: Todd Hass saw and heard one calling at Chapel Hill on 13 September, and one was banded by Lex Glover and Evelyn Dabbs near Mayesville on 5 September.

WESTERN KINGBIRD: There were four sightings along the North Carolina coast between 29 September and 30 October. Of more interest was one away from the coast at New Bern, N.C., where Bob Holmes, Rich Boyd, and Ken Wilkins observed one on 22 October.

GRAY KINGBIRD: Paul DuMont reported an individual at Avon, N.C., on 19 August.

SCISSOR-TAILED FLYCATCHER: Sam Cooper noted one on 18 September near NC 55, in Pamlico County just south of the Beaufort County line.

BANK SWALLOW: A good tally of migrants was 300 seen by Greg Massey at Fort Fisher, N.C., on 6 September.

WHITE-BREASTED NUTHATCH: John Fussell observed two birds during the fall in Carteret County, N.C., where extremely rare, along Hunters Creek at the Jones County line.

WINTER WREN: Quite early was a singing bird found by Ricky Davis at Falls Lake on 18 September.

MARSH WREN: Rather late was one noted singing on 20 November in northern Anderson County, S.C., by Peter Worthington.

SWAINSON'S THRUSH: Thorough details were provided by Peter Worthington of a very late individual seen in northern Anderson County on 20 November.

AMERICAN PIPIT: Rick Knight saw a flock of 28 birds at Round Bald on Roan Mountain, N.C., on 1 November.

SPRAGUE'S PIPIT: About the eighth record for South Carolina was one seen repeatedly in a grassy area near dunes at Huntington Beach State Park. First found by Irvin Pitts, it was later seen by Lex Glover, Robin Carter, and other birders from at least 20 November to 7 December.

CEDAR WAXWING: A rare breeding record for South Carolina was an adult feeding young at a nest one mile east of Seneca from 13 to 16 July (Stanlee Miller).

PHILADELPHIA VIREO: The only reports for the season were of two seen at Carolina Beach SP, N.C., on 16 September (Sam Cooper) and single birds banded by Lex Glover and Evelyn Dabbs near Mayesville on 28 September and 2 October.

GOLDEN-WINGED WARBLER: In addition to a few sight records from North Carolina, two were seen along the coast, where quite rare, at Mt. Pleasant, S.C., on 24 September (Roger McNeill et al.). This species is seldom captured at banding stations; thus, notable was one banded by Lex Glover and Evelyn Dabbs near Mayesville on 25 September.

NASHVILLE WARBLER: Two were early at Cape Romain NWR, S.C., on 24 August (Todd Hass, Vince Pack). Other notable Nashville records were singles banded near Mayesville on 6 and 17 September (Lex Glover, Evelyn Dabbs), one seen circling a boat on a pelagic trip off Oregon Inlet on 8 September (Harry LeGrand, Mike Tove), and one seen in Greenville, N.C., on 12 September (Veronica Pantelidis).

NORTHERN PARULA: Somewhat late was one observed by Robin Carter at Congaree Swamp National Monument, S.C., on 10 November.

BAY-BREASTED WARBLER: Normally uncommon to rare along the coast, an excellent count of 24, along with 13 of the more numerous Blackpoll Warbler, was made by Greg Massey on 14 October at Fort Fisher.

CERULEAN WARBLER: Kevin Calhoon observed an immature in northeastern Lexington County, S.C., on 12 August for the only fall report of the species.

PROTHONOTARY WARBLER: Quite rare in the mountains was one, almost certainly a migrant, seen by Lex Glover at Hendersonville, N.C., on 2 September.

NORTHERN WATERTHRUSH: Very late was one seen by Anne and Vernon Waters at Savannah NWR, S.C., on 23 November.

CONNECTICUT WARBLER: Always noteworthy in the Carolinas, individuals of this species were banded near Mayesville on 17 September by Lex Glover and Evelyn Dabbs and observed at Maggie Valley, N.C., on 14 October by Steve Mihaley.

MOURNING WARBLER: David Leake banded one (no date given) during the fall in Southern Shores, Dare County, N.C., for the only report for the season.

HOODED WARBLER: A male was seen and heard calling along the Trent River northwest of Comfort, N.C., on 12 November by Harry LeGrand and John Fussell.

WILSON'S WARBLER: Rather late was one seen on 15 October near Mayesville by Lex Glover.

WESTERN TANAGER: Pete Laurie closely observed one at a bird bath in his yard at Johns Island, S.C., on 1 October.

PAINTED BUNTING: A female and a young bird were seen at Lugoff, S.C., on 19 August by Lex Glover.

DICKCISSEL: The only fall report again came from the Outer Banks, where Ricky Davis saw and heard one at Bodie Island on 16 September.

CLAY-COLORED SPARROW: This species is usually reported from the coast in fall; however, the only sighting was one bird inland near Bahama in northern Durham County, N.C., on 4 November (Tom Krakauer).

LARK SPARROW: Bob Lewis saw an immature at Pea Island on 27 and 28 August. This species, fairly common in fall on the Outer Banks in the 1960's, is becoming almost a rarity in the 1990's.

GRASSHOPPER SPARROW: Veronica Pantelidis observed three birds, and heard two others, as late as 14 September about 5 miles east of Greenville, N.C. Birds were present here all summer, near the edge of the breeding range.

LINCOLN'S SPARROW: Single birds were noted in North Carolina on 7 October near Fishing Creek on the Edgecombe - Halifax County line (Ricky Davis), from 15 to 18 October at a window feeder in Winston-Salem (Ramona and Harry Snavely), on 25 November in western Lenoir County (Eric Dean), and singing on 1 December near Chapel Hill (Haven Wiley). An immature was banded on the early date of 30 September near Mayesville (Lex Glover, Evelyn Dabbs).

WHITE-CROWNED SPARROW: Locally rare were two to three seen on 7 November near Fayetteville, N.C., by Philip Crutchfield.

LAPLAND LONGSPUR: Completely unexpected, and extremely early, was a female seen at the parking lot at Mount Mitchell SP, N.C., on 12 August by Robert Ruiz. One was noted by Kevin Jennings at the Charlotte Motor Speedway near Harrisburg, N.C., on 4 November; one was seen by Derb Carter at Figure Eight Island, New Hanover County, N.C., on 18 November; and as many as four were seen by Dennis Forsythe and others at Huntington Beach SP from 25 to 28 November.

SNOW BUNTING: Larry and Kathy Rowland photographed one at a parking lot at Pilot Mountain SP, N.C., on 21 November for a very rare inland record. [Photos were reviewed and confirmed by this editor.—HEL]

YELLOW-HEADED BLACKBIRD: Paul DuMont observed one at Pea Island on 2 September, and two were also seen at Cape Hatteras point on 7 September (Marcia Lyons) and 16 September (Ricky Davis). Two were noted by Dennis Forsythe on 2 October at Dill Refuge near Charleston.

NORTHERN ORIOLE: Ramona Snavely and Kay Bergey observed two pairs nesting and feeding young along Salem Creek in southern Forsyth County, N.C., on 30 May and 2 June.

BOOK REVIEW

BIRDS OF JAMAICA: *A Photographic Field Guide*

Audrey Downer & Robert Sutton. 1990. Photos by Yves-Jacques Rey-Millet. Cambridge Univ. Press, New York 10011.Hardback. 152 pp. $29.95.

Jamaica is the third largest island in the Caribbean Sea (about 4000 square miles) located approximately 95 miles south of Cuba and 110 miles west of Haiti. Jamaica's topography and geology are diverse, producing a variety of habitats that attract a large number of birds. Forty-six species and subspecies of birds are endemic to Jamaica, that is found nowhere else in the world. With its tropical location, relative proximity, and English language, it is not surprising that it has become a popular attraction for both American and British tourists.

Since 1936 the definitive guide to the birds of Jamaica, and all of the other islands in the Caribbean, has been James Bond's *A Guide to the Birds of the West Indies*. Bond's *Guide* is still considered the authority on the region. However, if you are a birder and you are vacationing only on Jamaica, you may not be interested in (and may even be confused by) all those other birds that occur on all those other islands covered by Bond. This is the standard motivation for producing a local field guide. The membership of the local Gosse Bird Club had the required basic information and the recent volume of tourists with at least a passing interest in birds made the proposal economically feasible. The result is this little guide.

Be forewarned; if you want to be able to identify most of the birds that you encounter while vacationing in Jamaica, you will need more than just this guide. During the cold-weather months, when most people will find Jamaica maximally appealing, the island will also be occupied by a large (dwindling) number of avian tourists, over-wintering after a strenuous breeding season on the North American mainland. The authors of this guide assume that everyone knows how to identify these species so they are neither illustrated nor described. Many of these birds are wearing relatively drab, comparatively unfamiliar plumages (for example, the "confusing fall warblers"), meaning you may want to bring along your trusty North American guide if you want to identify these. In addition, there are a several wide-spread Caribbean species found on Jamaica such as the West Indian Whistling Duck, Yellow-breasted Crake, Plain Pigeon, and Golden Swallow that are not illustrated in this guide nor are they even listed in any of the common North American guides. For these you still need to have a copy of Bond.

What this guide does provide are sixty-five excellent photographs of Jamaican birds and recommendations to about four dozen places where species of birds can be found. Normally I am not very enthusiastic about photographs in field guides, but these look like they will work reasonably well. The photos will probably not work reliably for differentiating many of the species of flycatchers, but then again, nothing is going to make identification of the species of *Elaenia* or *Myiarchus* easy.

The thirty dollar price of the book is expensive for what you get compared to a Peterson Guide or the National Geographic Guide, but if you can afford to spend time in Jamaica on vacation, you can probably afford the additional cash for this local bird guide.—H. T. Hendrickson.

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CBC

Concerning the Timeliness of Information in the 1970 Reprint Edition of “South Carolina Bird Life” by Sprunt and Chamberlain

ALBERT E. CONWAY

In 1970, when the University of South Carolina Press published a reprint with supplement of “South Carolina Bird Life” (Sprunt and Chamberlain 1970), it was erroneously styled a “Revised Edition.” The only new material in this reprint of the original volume (Sprunt and Chamberlain 1949) was a seventy page supplement by E. Milby Burton of records through 1968.

1991

None of the material in the text of the original publication was changed (Pages i-xx and 1–571), although the pages for the index were renumbered 643–655 rather than 573–585.

Unfortunately, some contributors to “The Chat” and other ornithological journals continue to make the mistake of assuming that the main text of the reprint reflects records through 1968 rather than 1948.

The index to the 1970 reprint does not include references to species included in the Burton supplement. Therefore, the reader must search through the species accounts for any new material on a given species.

It was a matter of great distress to Burnham Chamberlain that the 1970 reprint of “South Carolina Bird Life” was incorrectly called a revised edition. I had the pleasure of giving him a copy of a letter of April 24, 1984 from Robert T. King, Director of the University of South Carolina Press. Mr. King wrote, “You are correct in thinking that the 1970 edition should have been called a ‘Reprint with Supplement’.”

There are two more recent books which update information on the birds of South Carolina. “Birds of the Carolinas” (Potter et al. 1980) regrettably perpetuates the erroneous belief that the main text of the 1970 reprint of South Carolina Bird Life” was revised.

Post and Gauthreaux (1989) have attempted to produce a definitive list of the status of all South Carolina birds. In this task, they have succeeded admirably, although they are seeking comments for a revised edition.

It is to be hoped that future contributors to “The Chat” will be aware of the limitations to the data in the 1970 reprint of the 1949 text of “South Carolina Bird Life.”

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General Field Notes

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NOTICE

Publication of any unusual sightings of birds in the Field Notes or Briefs for the Files does not imply that these reports have been accepted into the official Checklist of Birds records for either North or South Carolina. Decisions regarding the official Checklists are made by the respective State Records Committees and will be reported upon periodically in THE CHAT.

An Insular Group of Red-cockaded Woodpeckers

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The Red-cockaded Woodpecker (*Picoides borealis*) is an endangered species restricted to mature pinewoods of the southern United States. Although Red-cockaded Woodpecker distribution includes 13 states, biologists have expressed concern over the increased fragmentation, small size, genetic isolation, and long term survivability of many Red-cockaded populations (Reed et al. 1988).

We report here on an island group of Red-cockaded Woodpeckers at Persanti Island in Lake Marion, Clarendon County, South Carolina, that has persisted for at least 20 years. Persanti Island is 2.4 km long, averages about 1.2 km wide, and is 154 ha in extent. This island was formerly a high ridge within the Santee River Swamp until Lake Marion was created by impoundment of the Santee River in 1941 by the Santee-Cooper Public Service Authority. Since then Persanti Island has been bounded on the west by open water and scattered clumps of small cypress (*Taxodium distichum*) and water tupelo (*Nyssa aquatica*) trees mixed with open water on the remaining sides. The nearest high ground is on the mainland 2 km on either side of the island and a small finger of the Santee Wildlife Refuge 1.2 km to the east. The island receives little use except for makeshift camping along the edges by hunters and fishermen and is under current management as a natural area by Santee-Cooper.

Red-cockaded Woodpeckers have been known to occur on this island since at least 1972 when the senior author saw two birds and found several cavity trees during a brief visit to the northern end.

On 31 January 1991 we made a complete survey of Persanti Island for Red-cockaded Woodpeckers. No obvious changes had taken place on the island since 1972. The vegetation consists of a well-stocked mature loblolly pine (*Pinus taeda*) canopy mixed with scattered shortleaf pine (*Pinus echinata*) and a subcanopy of southern red oak (*Quercus falcata*) and hickory (*Carya* spp.). A 6–8 ha pine plantation approximately 30 to 35 years old occurs on the northern end of the island. The understory is primarily hardwood and surprisingly light in the absence of any active forest management. The presence of fire, probably from unattended campfires, was evident on portions of the island, and undoubtedly accounted for some understory control.

We found a total of 13 active, 14 inactive (or with enlarged cavities) and three "start" Red-cockaded Woodpecker trees on the island. All cavity trees were in loblolly pine. Based on the distribution of cavity trees, we believe 5 active clans of woodpeckers may occur on Persanti Island. However, without more detailed observations of woodpecker clans, a precise clan count is not available at this time. We saw Red-cockadeds at three of the five colony sites but never saw more than four birds at any one time.

Damage to Red-cockaded Woodpecker habitat from Hurricane Hugo, whose eye passed near Persanti Island with sustained wind speeds of 145 km/hr recorded from nearby Sumter, was evident. We found 15 cavity trees (33% of the total active and inactive trees) had been snapped off or blown down by Hugo. This figure compares with an average 40% loss of Red-cockaded cavity tress found in an extensive survey of the hurricane-affected area (Cely and Ferral, unpublished). Hurricane damage, however, was fairly well distributed among colonies on the island except for one on the northeastern side (and most exposed to the storm's southwesterly winds) where only one active tree and one "start" was found; many of the large, potential cavity trees were also destroyed at this site.

The land-use history and isolation of Persanti Island make it an interesting study area for Red-cockaded Woodpecker biology and management. At the time of acquisition by Santee-Cooper 50 years ago, Persanti Island was mainly old fields with scattered pine (Robert Petracca, pers. comm.). We suggest that this island was colonized by Red-cockadeds sometime after Lake Marion was built in 1941 and that the relict pines serve as the current cavity trees. The earliest age for loblolly pine to become suitable as a Red-cockaded cavity tree is about 75 years (U. S. Fish and Wildl. Ser. 1985), although trees in the 40–60 year range have been used on occasion as cavities (Hopkins and Lynn 1971).

At present the nearest Red-cockaded Woodpeckers to Persanti Island is a small group of 2–4 birds at Santee State Park 2.4 km to the west. Another small group, perhaps no more than two birds, occurs 10 km to the southeast at the Santee National Wildlife Refuge. The isolation of Persanti Island by water would make the woodpecker clans there dependent upon the island resources for their foraging and cavity needs, but the degree of true genetic isolation is unknown. Red-cockaded Woodpeckers are strongly territorial and non-migratory, but recent information has shown that at least on occasion they can move distances up to 90 km (Walters et al. 1988).

Acknowledgements. This survey was made possible, in part, by a grant from the U. S. Fish and Wildlife Service to the S. C. Wildlife and Marine Resources Department. We thank T. A. Beckett, III, J. Fringeli, R. G. Hooper, and R. F. Petracca for their comments and reviews of this note.

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Tool-making and tool-using by a Brown Thrasher (*Toxostoma rufum*)

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On 15 October 1990 at my banding station at Hilton Pond near York, South Carolina (Lat 34°58'N, Long 81°13'W), I watched a Brown Thrasher (*Toxostoma rufum*) enter a pull-string welded-wire ground trap baited with shell corn and white millet. The bird ignored the bait, instead using its bill to pick up an un-capped acorn that was about 1.5 to 2 cm in diameter and probably from a nearby Southern red oak, *Quercus falcata*.

The thrasher carried the acorn outside the trap door and dropped it onto rain-softened bare ground. With rapid downward sweeping motions of its bill, the bird immediately excavated a hole in the soil about 1.5 cm deep and placed the acorn in it. The thrasher then repeatedly rammed its bill perpendicularly against the exposed surface of the acorn. Although the nut usually stayed in place, the bird returned it to the depression on each of several times the acorn was dislocated by impact from the thrasher's bill.

On about the tenth hit, the thrasher cracked off a small piece of nutshell, exposing the orange meat of the acorn. After this, the bird appeared to aim its blows at the broken shell edge rather than hitting the acorn surface at right angles; several times the thrasher used its bill to rotate the acorn in the hole, apparently to provide a better angle of attack. The bird took about two minutes to expose a complete upper hemisphere of acorn meat and another 90 seconds to peel the remaining shell from the other hemisphere. Only after the shell was completely removed did the thrasher begin to peck directly at the nutmeat, breaking it into small chunks and ingesting them one at a time.

Thorpe (1956) defines tool-use in animals as the manipulation of objects that serve as extensions of an organism's body. Perhaps the best known example of tool-use in birds is by the short-billed Galapagos Woodpecker-Finch (*Camarhynchus pallidus*) that prods insects from holes with a long cactus spine (Lack 1947). Few North American birds have been reported as tool-users, one exception being Brown-headed Nuthatches (*Sitta pusilla*) in Louisiana that use pine bark scales to pry other bark scales from trees, exposing prey items (Morse 1968).

Birds such as Blue Jays (*Cyanocitta cristata*) often wedge acorns or seeds into tree bark crevices to hold them in a position suitable for breaking the shell (personal observations). In a sense, the crevice becomes a "tool" for the jay in the same way that a vise is a tool for a woodworker, i.e., the vise (or crevice) is a "third hand." The Brown Thrasher I watched actually made a tool by excavating a depression of appropriate size to hold a food item.

A thrasher's heavy, decurved bill is well adapted for sweeping through leaves for terrestrial invertebrates, lizards, small snakes, and seeds, or for digging up earthworms. Beal et al. (1916) examined the gastrointestinal tracts of 266 Brown Thrashers and found about a 2:1 ratio of animal to plant material; of the vegetable matter, 24 per cent was acorns. Skinner (1928) reported that "Brown Thrashers sometimes pick up acorns and carry them away in their bills, and later open them as the Jays do. But they are ground birds, unlike the Jays, and when they try to split the shell from an acorn by pile-driver blows, they often drive the acorn down into soft ground. In spite of this difficulty, they persevere and the shell eventually flies off."

My observation at York shows the Brown Thrasher can crack nutshells with greater efficiency by crafting a holding device prior to the first blow by its bill.

ACKNOWLEDGEMENTS. I extend my thanks to John Cely for help in obtaining partial funding for the Hilton Pond banding station through his office at the Nongame Program, South Carolina Wildlife and Marine Resources Department. Keith Bildstein made helpful suggestions about the original manuscript.

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Brown Thrasher Preys on Fiddler Crab.

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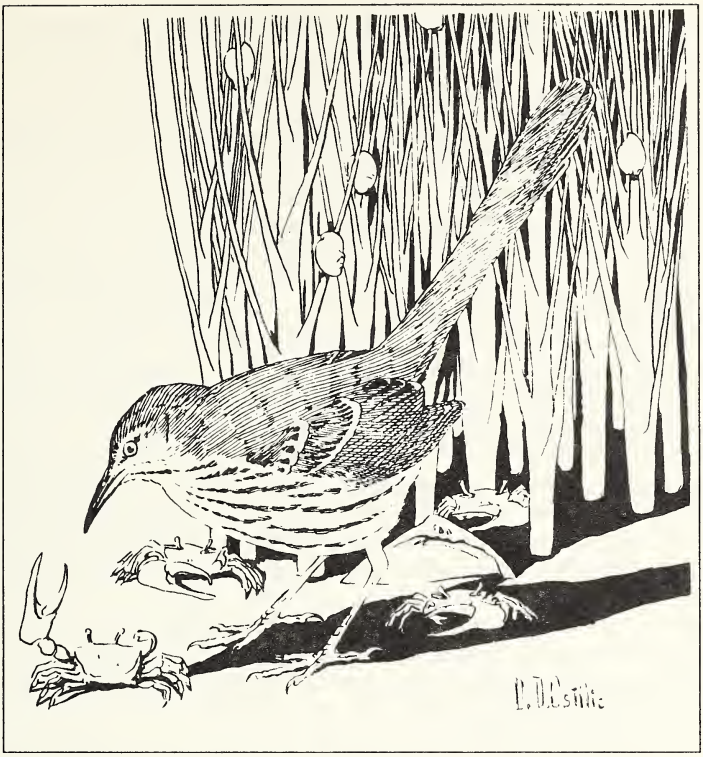
At 0805 on 4 July 1991 I saw two Brown Thrashers (*Toxostoma rufum*) at the edge of a dirt road in Sneads Ferry, Onslow County, North Carolina. One bird darted out into the road and seized a Brackish-water Fiddler Crab (*Uca minax*) in its bill. This bird then flew off into a thicket with the crab. Sources cited in Bent (1964. Life histories of North American nuthatches, wrens, thrashers and their allies. U.S. Nat. Mus. Bull. No. 195. Dover Publ. New York) examined over 266 stomachs of Brown Thrashers. Insects (beetles, caterpillars, cicadas, tree-hoppers, grasshoppers, and crickets) and the berries or fruits of over 30 species of plants constituted the principal food items found. Unusual food items cited in Bent included crayfish, lizards, salamanders, and tree frogs. Fiddler crabs are not listed as prey of the Brown Thrasher, nor are other marine or estuarine organisms.

The specific location of the crab capture was in an upland plant community about 300 m from the nearest brackish marsh vegetation (primarily *Juncus roemerianus*), the preferred habitat of this species of fiddler crab. Dominant plants at the site were Post Oak (*Quercus stellata*), Blackjack Oak (*Quercus marilandica*), White Oak (*Q. alba*), Loblolly Pine (*Pinus taeda*), and feral Scuppernong Grapes (*Vitis* sp.).

I have observed what appears to be local overland dispersal movements of *U. minax* each June and early July (noted each year, 1985–1991) in the Sneads Ferry area. Fiddlers are frequently encountered on dry, sandy roads 300–400 m from marshes at this time of the year. On 6 July 1991 I measured and determined the sex of 23 *U. minax* that had been involved in these high-ground movements. Twelve were males whose carapace width averaged 20.9 mm (range 16–27 mm). The claw segment of the large cheliped on these males averaged 31.8 mm (range 17–48 mm) in length. The carapace width of eleven females averaged 19.6 mm (range 16–22 mm). Thus, adults and juveniles of both sexes were involved in the overland movements.

In summary, the Brown Thrasher opportunistically encountered and captured a novel prey item, the fiddler crab, as the crab was engaged in an overland dispersal behavior away from its normal marsh habitat. Since the Brown Thrasher and its close relative the Northern Mockingbird, *Mimus polyglottos*, (Bent, A.C. 1964. Life histories of North American nuthatches, wrens, thrashers and their allies. U.S. Nat. Mus. Bull. No. 195. Dover Publ. New York) are known to take crayfish, it is not surprising that thrashers consume other small crustaceans opportunistically. Bent (1964. Life histories of North American jays, crows and titmice. U.S. Nat. Mus. Bull. No. 191. Dover Publ., New York) reported that Fish Crows (*Corvus ossifragus*) also take crustaceans: shrimp, crayfish, and small crabs, especially fiddlers.

Acknowledgements: I thank Eloise F. Potter and David S. Lee for reviewing this note.



Dominick O. D'Ostilio, one of the Executive Board's members-at-large from Western North Carolina, has graciously provided this pen and ink drawing to accompany the interesting observations of Dr. Gilbert Grant on the Brown Thrasher.

CBC Rare Bird Alert
(704) 332-BIRD

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates Fall 1990 and Winter 1990-91 unless otherwise indicated;
CBC = Christmas Bird Count)

RED-THROATED LOON: One was rare inland on Jordan Lake, Chatham County, N.C., as seen by Paul Saraceni on 23 February.

RED-NECKED GREBE: The only report for this elusive species was one seen by Rich Boyd and party at Oregon Inlet, N.C., on 22 January.

EARED GREBE: One was photographed by Michael O'Brien in a small creek at Ocracoke, N.C., on 31 December; other birders saw it later in the day. Another was noted at the jetty at Huntington Beach SP, S.C., on 19 and 20 January by Robin Carter, Caroline Eastman, and others.

MANX (?) SHEARWATER: A small black-and-white shearwater, identified tentatively as a Manx by Michael O'Brien and Rick Blom, was seen in flight from shore at Ocracoke Island, N.C., on 31 December. [Because the bird was 200 to 400 yards from shore, and because of the difficulty in separating this species from the similar but smaller Audubon's Shearwater, I believe that a positive identification is unlikely.—HEL]

NORTHERN GANNET: Rarely seen from the mainland side of Pamlico Sound, N.C., three were notable near Middletown on 28 December (Harry LeGrand, John Fussell), as was one near Pamlico Point on 14 December (Philip Crutchfield party).

AMERICAN WHITE PELICAN: Reports of a single bird at Ocracoke, N.C., on 31 December (Bob Russell, Mike Tove, et al.) and at Hatteras Inlet, N.C., from 19 to 21 January (John Wright et al.) might involve the same individual.

GREAT CORMORANT: Philip Crutchfield observed four in flight with Double-crested Cormorants at Pamlico Point, N.C., on 15 December. In addition to a handful of reports from the coast of that state, as many as four were present as usual during the winter at the jetties at Huntington Beach SP, S.C. (Robin Carter et al.).

DOUBLE-CRESTED CORMORANT: Unusual in the mountains in winter was one seen by Carolyn and Rick Mills on Thunder Lake in Pisgah Forest, Transylvania County, N.C., on 1 January.

AMERICAN BITTERN: Ricky Davis flushed one from a ditch at Occoneechee Neck, Northampton County, N.C., on 23 December.

LEAST BITTERN: Always a good find in winter, one was observed by Gilbert Grant at West Onslow Beach, N.C., on 2 December 1989 (fide John Fussell).

GREAT BLUE (WHITE) HERON: The individual found in late November at the spoil area in southern Jasper County, S.C., was again seen on 2 December by Robin Carter, Caroline Eastman, and Kevin Calhoon.

CATTLE EGRET: There were a number of winter records for extreme eastern North Carolina, with an excellent seven observed in plowed fields just northeast of Lake Mattamuskeet on 28 December (Harry LeGrand). Others were two seen north of Morehead City from 29 to 31 January (John Fussell, Deb Squires), one seen flying over Pamlico Sound from the Ocracoke-Swan Quarter ferry on 28 December (Mike Tove), and one observed along NC 168 at Moyock on 31 December (Harry Armistead party).

GREEN-BACKED HERON: One seen by Jim O'Donnell at Pine Knoll Shores, Carteret County, N.C., on 16 December was noted again by this observer on 2 February. Other reports from that state were singles at a farm pond near Lillington on 15 December (Paul Hart) and at a quarry pond near New Bern on 3 February (Bob Holmes, Carolina Bird Club).

GLOSSY IBIS: A good mid-winter count was 15 noted by Anne and Vernon Waters at Savannah NWR, S.C., on 26 January.

TUNDRA SWAN: Quite rare for the piedmont was an immature seen near Greensboro, N.C., by Herb Hendrickson and others from 15 December to 2 March. Locally rare in the coastal plain, all in North Carolina, were five near Fayetteville from 22 to 25 January and six there from 14 to 28 February (Philip Crutchfield), five at Goldsboro on 22 February (Gene Howe), and one at Greenville on 23 December (Elmer Britt, fide Veronica Pantelidis).

SNOW GOOSE: Notable in the piedmont were single birds seen on 23 December in Forsyth County, N.C., by Gray Tuttle and on 27 December in northern Mecklenburg County, N.C., by Heathy Walker and Harriett Whitsett.

GREEN-WINGED (EURASIAN) TEAL: A male was observed by Ricky Davis, Harry LeGrand, and dozens of Carolina Bird Club members at Calico Creek in Morehead City, N.C., on 1 and 2 February. A second male was seen at Cape Hatteras point, N.C., on 19 January by Davis, LeGrand, and John Wright.

BLUE-WINGED TEAL: One was rather late near Pactolus, Pitt County, N.C., on 24 December (John Wright).

EURASIAN WIGEON: A male was seen by Anne and Vernon Waters, Lex Glover, Robin Carter, and others from late November to 14 December at Savannah NWR, S.C. Additional male wigeons were seen by Eric Dean, Mike Tove, and others along the causeway (NC 94) at Lake Mattamuskeet on 28 December and by Dean at the Bodie Island marina at Oregon Inlet on 10 February.

GREATER SCAUP: One was notable at the Savannah River Site (formerly Savannah River Plant), S.C., on 20 December, as seen by Vernon Waters. [I have received a handful of reports of this species in much larger numbers than I consider likely. For example, several people have reported hundreds to thousands of Greater Scaups along the South Carolina coast, where the Lesser is certainly common to abundant. As Greaters appear to be quite uncommon as migrants south of Pamlico Sound, N.C., I believe that nearly all scaups along the South Carolina coast are Lessers. Separation of Greater and Lesser scaups is one of the most difficult identification problems in the Carolinas. I frequently have difficulty in separating males within 100 feet of me, and females can be nearly impossible to separate unless the wing stripe is seen. Even in flight, the comparative lengths of the wing stripes can be difficult to discern. For these reasons, I do not expect to publish reports of dozens, much less hundreds or thousands, of

Greaters south of Pamlico Sound unless strongly convincing details are provided.—HEL]

HARLEQUIN DUCK: Considering the mild winter, there was a surprising number of reports, particularly in South Carolina. Reports in that state were a female at the Huntington Beach SP and Garden City jetties from 14 to 27 January (Lex Glover, Kevin Calhoon, Robin Carter, Caroline Eastman), a male and female at the Garden City jetty on 24 February (Dennis Forsythe), a male at Fort Moultrie on Sullivans Island on 11 February (Joe Bean), and two males and a female at jetties at Charleston on 28 February (Glover, Mark Spinks). Surprisingly, the only winter report for North Carolina was a male at the Oregon Inlet bridge on 20 January (Ricky Davis et al.).

SURF SCOTER: Very rare inland were a remarkable three females and four immature males seen by Ramona Snavely, Hop Hopkins, and Gray and Harrison Tuttle near Winston-Salem, N.C. The birds were seen on Shamrock Estates Lake on 20 and 21 December. Also of note was a female seen on a pond at Greenville, N.C., on 13 January by John Wright.

OSPREY: Although a handful of individuals winter along the southern coast of North Carolina, single birds in that state at Buxton on 30 December (Harry LeGrand, Paul Sykes, et al.), Goldsboro on 15 December (John and Paula Wright), and Greenville on 20 December (John Wright) were noteworthy. One immature near Greenville, S.C., on 29 December (Peter Worthington) was quite surprising for the upper piedmont.

ROUGH-LEGGED HAWK: Rich Boyd described two light-phase individuals seen perched (on a billboard and a fence post) and in flight along I-95 just south of Enfield, N.C., on 4 February, and he saw one of the birds there on 6 February. Seldom reported from the southern half of North Carolina, another Rough-legged, a dark-phase individual, was studied carefully for an hour on 1 February in central Carteret County by Harry LeGrand and Ricky Davis.

GOLDEN EAGLE: The only report for the winter was an immature seen independently by two parties (Perry Nugent, David Chamberlain, et al.) in the southern portion of Francis Marion NF near Charleston on 30 December.

MERLIN: Individuals were rare inland in South Carolina on the Aiken CBC on 24 December (Anne Waters) and on the Long Cane CBC on 28 December (Steve Patterson et al.).

PEREGRINE FALCON: In addition to the usual reports from the coast, single birds were observed in inland North Carolina at Saluda on 15 December (Simon Thompson), just north of Greenville on 20 December (Veronica Pantelidis), in downtown Raleigh from 26 December to 3 January (Jesse Perry), and at Jordan Lake on 13 January (Paul Saraceni). Two birds, perhaps the pair that bred locally, spent the winter at Chimney Rock, N.C., according to Thompson. Inland sightings from South Carolina were from downtown Columbia on 20 January (Robin Carter, Caroline Eastman) and on 27 January at Santee NWR (Kevin Hennings).

BLACK RAIL: Sarah Landrum saw one from a few feet away at South Island, Georgetown County, S.C., on 26 January, for a very rare winter record for that state. One was heard calling just before dusk at North River north of Beaufort, N.C., on 2 February (Carolina Bird Club).

VIRGINIA RAIL: One was heard calling from a marsh at Walnut Creek Lake east of Goldsboro, N.C., on 15 December by Frank Enders. Another was heard calling from a marsh in a quarry near Charlotte, N.C., on 30 December by David Wright and party.

SANDHILL CRANE: One was present from November to at least 13 March at Lockwood Plantation near Huger, S.C., as observed by Robin Carter, Dennis Forsythe, and others. Another crane was present in January at the Bluff Unit of Santee NWR, according to Lex Glover, who heard it calling on 29 January. John Fussell reported that two cranes overwintered at Mackay Island NWR, N.C., as noted by refuge personnel.

WILSON'S PLOVER: Although a few birds may linger along the Carolina coast into late December, overwintering is quite unusual. However, two plovers spent the winter at Bird Shoal near Beaufort, N.C., as seen by John Fussell and others. Notable in winter for South Carolina were two on 4 February at Harbor Island in Beaufort County (Lex Glover) and one on 8 February at Edingsville beach in Charleston County (Glover).

LESSER YELLOWLEGS: Apparently an early migrant was one on 23 February at Bethel, N.C. (John Wright).

WILLET: Always notable inland, one was observed by Veronica Pantelidis and Russ Tyndall near Pactolus, Pitt County, N.C., on 27 August.

SPOTTED SANDPIPER: A lingering individual was seen by Mike Tove on 15 December at Goldsboro.

WHIMBREL: Although a few Whimbrels overwinter along the Carolina coast, a total of six all winter at Bird Shoal near Beaufort, N.C. (John Fussell) was a good count. Another was seen by Fussell at Barden Inlet near Cape Lookout, N.C., on 15 January.

LONG-BILLED CURLEW: One wintered, as usual, at Fort Fisher, N.C., as noted by many observers, and two spent the winter near Beaufort, N.C. (John Fussell et al.).

LEAST SANDPIPER: Eric Dean saw 35 at Goldsboro on 5 January, for a good inland count for that month. Four were observed on 23 February at a sewage pond at Bethel, N.C., by John Wright.

PECTORAL SANDPIPER: This migrant normally appears in the Carolinas in mid-March; thus, three were quite early on 23 February near Townville, S.C. (Peter Worthington).

DUNLIN: John and Paula Wright saw nine Dunlins on the Goldsboro CBC on 15 December. Despite the mild fall and winter, no other inland Dunlins were reported.

LONG-BILLED DOWITCHER: This species probably overwinters at least occasionally at Lake Mattamuskeet, where Harry LeGrand saw and heard ten birds along the causeway on 31 December.

RED PHALAROPE: An injured bird was found on a street in Pine Knoll Shores, N.C., on 19 December and turned in to an animal shelter, where it was later released. John Fussell confirmed the identification.

POMARINE JAEGER: In addition to a few CBC observations, one was seen on 9 February at Pamlico Sound, N.C., from the Swan Quarter-Ocracoke ferry (Eric Dean).

LAUGHING GULL: Very rare on an inland CBC, one was noted at Goldsboro on 15 December by John and Paula Wright.

COMMON BLACK-HEADED GULL: The bird present last winter at Morehead City, N.C., returned to winter this season, where it was seen frequently at a sewage treatment plant and at Calico Creek (John Fussell, Carolina Bird Club). A bird believed to be in second-winter plumage was seen on Currituck Banks, N.C., at the Virginia line on 16 February (John Wright, Harry LeGrand).

BONAPARTE'S GULL: Rare for the mountains were approximately eight birds in the Cedar Mountain area of Transylvania County, N.C., on 15 December, as noted by Bill Thomas, Norma Siebenheller, and Bill Siebenheller. Lex Glover had a very good total of 400 Bonaparte's at Lake Wateree, S.C., on 17 January.

ICELAND GULL: A first-winter individual was seen in the harbor at Wanchese, N.C., on 20 January and 17 February by Harry LeGrand, Ricky Davis, Derb Carter, and others. An adult was present in the Morehead City area during the winter, where it was seen by John Fussell on 12 January and by many members of the Carolina Bird Club on 3 February.

LESSER BLACK-BACKED GULL: A good count for Currituck Banks was at least three birds on 16 and 17 February on the beach between Corolla and the Virginia line (John Wright, Harry LeGrand). Rather far inland, though still in the tidewater region, was an adult seen at Aurora, N.C., on 27 February by Sam Cooper. Single birds at Holden Beach, N.C., on 19 January (Gene Howe, Betty Grady, Harriet Duncan) and at Huntington Beach SP, S.C., on 27 January (Lex Glover) were locally rare.

GLAUCOUS GULL: An immature, believed to be in second-winter plumage, was seen at Beaufort, N.C., from 20 January to early February, as seen by David Wright, Taylor Piephoff, and others. Dennis Forsythe observed a Glaucous Gull at Pawleys Island, S.C., on 15 December.

GREAT BLACK-BACKED GULL: Very rare inland were one seen at Jordan Lake on 16 December (Barbara Roth party) and up to four individuals in the Greenville, N.C., area in January and February (fide John Wright).

SANDWICH TERN: This species is very rare on the coast by late December. However, this season one was seen on the Wilmington, N.C., CBC on 29 December by John Brunjes; and a remarkable total of eight birds, three by one party and five by another, were seen at Ocracoke Island, N.C., on 31 December (Michael O'Brien, Bob Russell).

FORSTER'S TERN: A surprising record was one seen in flight at a wastewater treatment lagoon at Lillington, N.C., by Paul Hart and party on 15 December.

RAZORBILL: Though there were numerous records of four or five alcid species during the winter for Virginia and Maryland, the Razorbill was the only alcid species found in the Carolinas. Single birds were seen at four locations along the coast: at Oregon Inlet, N.C., on 31 December (Paul Sykes, Ned Brinkley, Paul McQuarry, Brian Patteson), at Kure Beach, N.C., on 19 January (David Wright, Taylor Piephoff), at Emerald Isle, N.C., on 23 February (Robin Carter, Caroline Eastman), and at Huntington Beach, S.C., from 26 to 28 January (Don Seriff, Lex Glover, and others).

LONG-EARED OWL: Perhaps the most convincing report of this species in the Carolinas in over a decade was the sighting of one during the day at Figure Eight Island, N.C., on 9 February. Derb Carter flushed it from a cedar at the north end of the island, and the bird perched in the top of another cedar in clear view. Several other birders glimpsed the owl later that day, but it could not be relocated on the following day.

SHORT-EARED OWL: This species seemed much more numerous than usual in eastern North Carolina during the winter. The best counts were at least six birds on several occasions from 20 January to 24 February in fields west of Lake Phelps, N.C. (Harry LeGrand, Ricky Davis, John and Paula Wright, and others). A few owls were also seen during the season at Voice of America sites in southeastern Pitt County and northwestern Beaufort County (Eric Dean, John Wright). Inland, one was seen in flight at Jordan Lake from the NC 751 bridge on 23 February (Paul Saraceni).

NORTHERN SAW-WHET OWL: Michael O'Brien heard the two-note call of this species, answering his whistling call, before dawn at Portsmouth Island, N.C., on 30 December.

WHIP-POOR-WILL: One was seen chasing insects over a dirt road in Buxton, N.C., at daybreak on 30 December by Harry LeGrand. The identification was based on the size of the bird being about that of a nighthawk, with rounded wings. One was seen sitting in a road before dawn at McClellanville, S.C., on 16 December by Charles Walters, Jeff Kline, and Ben Smith; and another was flushed from a dirt road after dark near that town on the same date by Perry Nugent and Ed Conradi.

ARCHILOCHUS HUMMINGBIRD (SP.?): As usual, several female or immature hummingbirds, with the "appearance" of Ruby-throated, were present at feeders during the winter in Carteret County, N.C., according to John Fussell. [Readers should note that an immature male Black-chinned Hummingbird was carefully seen, captured, banded, and released during the winter at a feeder in Georgia. As I have mentioned before, observers should not assume that hummingbirds of this genus, lacking the obvious rusty/rufous tones of *Selasphorus* hummingbirds, during the winter are Ruby-throateds. Some might be Black-chinneds, which have been conclusively documented in several eastern states in recent years.—HEL]

RUFOUS HUMMINGBIRD: Single immature males were reported from feeders in two South Carolina towns during the winter and observed by veteran birders. One was present from November to at least 12 January at Florence and was studied by Dennis and Donna Forsythe, Robin Carter, and Caroline Eastman. Another was at Lancaster during the winter and was seen by Lex Glover on 5 January.

RED-BELLIED WOODPECKER: One seen by John Fussell on 2 February at Cape Lookout, N.C., was quite surprising for that coastal area.

WESTERN KINGBIRD: There was a surprising number of late-departing individuals along the coast. In North Carolina, single birds were seen from 16 to 24 December at Kure Beach (Greg Massey, Jeremy Nance), on 24 December at Figure Eight Island (Derb Carter), and on 30 December at Portsmouth Island (Michael O'Brien, Bob Russell, et al.). One was seen by Lex Glover and Kevin Calhoon at Folly Beach, S.C., on 5 December.

EASTERN KINGBIRD: Most unusual in winter, particularly as the species is seldom found in November, was one seen on a telephone wire at close range in eastern Chatham County, N.C., on 30 December. Monica Nees, Halbert Carmichael, and Margaret Martin were able to observe the white tip on the tail of the kingbird.

BARN SWALLOW: Lex Glover observed a tardy swallow flying around a parking lot at Huntington Beach SP on 22 December.

COMMON RAVEN: Three ravens were seen by Simon Thompson in the foothills at Lake Adger, Polk County, N.C., on 15 January.

WHITE-BREASTED NUTHATCH: Seldom seen at any season along the North Carolina coast, one was studied carefully at Bald Head Island on 1 January (fide Ricky Davis).

SEDGE WREN: One was seen by Ricky Davis near Goldsboro on 15 December. The species, along with the Marsh Wren, probably overwinters over much of the coastal plain of the Carolinas.

BLUE-GRAY GNATCATCHER: There were many more reports from coastal areas than usual during the winter, primarily because of the mild temperatures. One was notable on 5 January in Rich Boyd's yard in New Bern, N.C.

NORTHERN MOCKINGBIRD: One seen at 3200 feet elevation in Glen Ayre, Mitchell County, N.C., on 23 December (Rick Knight) was quite surprising.

WHITE-EYED VIREO: The mild temperatures were responsible for more than the usual number of winter reports. Notable records were one north of Fayetteville, N.C., on 9 February (Philip Crutchfield, Doris Chambers); one north of McCormick, S.C., on 28 December (Tim Kalbach); and one in northern York County, S.C., on 29 December (Taylor Piephoff et al.).

ORANGE-CROWNED WARBLER: Notable CBC counts of the species for the inner coastal plain of North Carolina were three at Greenville on 1 January (fide John Wright) and two at Goldsboro on 15 December (Mike Tove, Merrill Lynch).

NASHVILLE WARBLER: Jeremy Nance and Greg Massey studied one just north of Southport, N.C., on 1 January for perhaps the fourth winter record for the state. Excellent details were provided by Nance.

YELLOW WARBLER: Very late were two immatures seen by Ricky Davis along the causeway at Lake Mattamuskeet on 2 December.

PRAIRIE WARBLER: John Fussell observed one at Fort Macon SP, N.C., on 10 and 16 December and on 27 January. Another was seen by Bob Holmes near Otway, Carteret County, N.C., on 16 December.

BLACK-AND-WHITE WARBLER: Always a good winter find in the piedmont, one was noted by Heathy Walker in her yard in Charlotte on 15 January.

AMERICAN REDSTART: Seldom reported in winter, an adult male was observed by Tonya Spires at Brookgreen Gardens, Georgetown County, S.C., on 15 December.

COMMON YELLOWTHROAT: Rare in winter in the Greensboro area were individuals seen there on 23 December by Herb Hendrickson and on 10 February by Henry Link.

WILSON'S WARBLER: A late bird, an adult male, was seen by Ricky Davis at Lake Mattamuskeet on 2 December. One was rare at Greenville, N.C., on 25 September, as noted by Veronica Pantelidis.

YELLOW-BREASTED CHAT: Paula Wright observed one, the only report for the winter, at Beaufort, N.C., on 16 December.

SCARLET TANAGER: A female or immature was seen by Jose Escobar at his feeder in Charleston, S.C., from 28 December to 4 January for one of the few winter records for the Carolinas.

INDIGO BUNTING: Ricky Davis observed one on 15 December in a field south of LaGrange, N.C.

PAINTED BUNTING: Most winter records for this species occur at feeders, and an adult male and a female/immature were present at several feeders in the Beaufort, N.C., area during the season (Lois Howland, Shirley Cuthrell). On the other hand, Robin Carter and Caroline Eastman noted a female or immature in a marsh at Columbia, S.C., on 15 December, providing a first winter record for that city.

CLAY-COLORED SPARROW: Harry LeGrand discovered a group of three birds north of Beaufort, N.C., on 16 December; at least one was still present until 20 January (many observers). LeGrand, along with Ricky Davis, John Wright, and Paula Wright, found two more Clay-coloreds west of Lake Phelps, N.C., on 20 January. At each site, the birds were in large flocks of sparrows in weedy fields and hedgerows.

VESPER SPARROW: An individual of this sharply declining species was seen at Pungo NWR, N.C., on 24 February by Rich Boyd and party. [Winter sightings of this species in much of the coastal plain of that state 20 years ago would not have been noteworthy; it now is found in winter in North Carolina only sparingly from Cleveland County east to Carteret County.—HEL]

LARK SPARROW: One was rare in winter at Buxton, N.C., on 30 December (Harry LeGrand).

GRASSHOPPER SPARROW: Individuals were seen in the western coastal plain of North Carolina at Goldsboro on 15 December (Ricky Davis) and near LaGrange on 3 February (Harry LeGrand). This secretive species might winter regularly in these areas.

HENSLOW'S SPARROW: John Fussell flushed two birds from a pine flatwoods burned during the previous summer in the Croatan NF near Newport, N.C., on 21 February. Another bird was seen by Peter Worthington near Townville, S.C., on 23 February.

LINCOLN'S SPARROW: An excellent count of five was seen in brush piles south of LaGrange, N.C., on 3 February by Ricky Davis and Harry LeGrand. Other records of single birds in that state were near Goldsboro on 15 December (Davis), along US 264 south of Lake Mattamuskeet on 28 December (John Fussell, Eric Dean), west of Lake Phelps on 20 January (Davis, LeGrand, John and Paula Wright), and in a yard in Winston-Salem on 21 February (Mary Eriksen). In South Carolina, one was observed near Landrum on 5 December (Simon Thompson) and another was seen at Carolina Sandhills NWR on 9 December (Lex Glover).

WHITE-CROWNED SPARROW: Despite intensive search, only one was found in the extensive brushpiles south of LaGrange, N.C., during the winter (Harry LeGrand, Eric Dean, et al.). One or two spent the winter at Buxton, N.C., as noted by LeGrand and others; and several also wintered at a quarry north of New Bern, N.C., as observed by John Fussell, Rich Boyd, and Ken Wilkins. Fussell also found an immature north of Beaufort, N.C., on 19 December.

LAPLAND LONGSPUR: The mild weather during the winter was the likely reason for the very few sightings of this northern species. At least one was seen on 6 December at Huntington Beach SP by Lex Glover and Kevin Calhoon, and one was noted west of Lake Phelps on 2 December by Ricky Davis.

SNOW BUNTING: Allen Boynton observed one on the road at the Basin Cove Overlook at Doughton Park on the Blue Ridge Parkway, N.C., on 16 December. Along the coast, five were on the beach on the Swan Island portion of Currituck Banks, N.C., on 14 December (Fred Annand) and one was in dunes at Holden Beach, N.C., on 19 January (Gene Howe, Betty Grady, Harriet Duncan).

RUSTY BLACKBIRD: Six birds were at the notably high elevation of 3200 feet in Glen Ayre, N.C., on 23 December, as seen by Rick Knight.

BREWER'S BLACKBIRD: A highly significant find was the observation of about 125 birds two miles south of Pungo Lake, N.C., on 4 February. Haven Wiley and party saw males and females in small bare trees with cowbirds and a single Red-winged Blackbird; calls were heard, including singing by the males. Peter Worthington reported a group of at least 65 birds at Simpsonville, S.C., on 29 December.

BOAT-TAILED GRACKLE: Dennis Forsythe observed a female at Santee NWR on 29 December for a very rare inland winter record for South Carolina. The species has been found breeding in this area previously by Will Post, but the winter status of the population is not known.

ORCHARD ORIOLE: Donald Perry saw an adult male in a yard in Manteo, N.C., on 29 December. Though there are a few previous winter records for that state, hardly any are well documented with photos or have been corroborated by experienced birders.

RED CROSSBILL: This species was again nearly non-existent away from the mountains during the winter. The only report away from that region was a group of eight seen at Jordan Lake on 16 December by Barbara Roth and party, and found again a few weeks later on the CBC by Jim Keighton and others.

EVENING GROSBEAK: The winter flight was very poor, with hardly any reports of ten or more birds. Pine Siskins and Purple Finches were also scarce.

SPECIAL REVIEW

The recent proliferation of birding software has caused a problem for birders wishing to computerize their observations. Each advertisement makes similar claims, so it's the differences that need to be considered before choosing a program. This article will try to point out some of the subtle and not so subtle differences between the more popular systems.

The four packages reviewed are *BirdBase 2*, by Santa Barbara Software, *Plover*, by Sandpiper Software, *DataHawk*, by Turnstone Software, and The *Sialis* System, by Alfred Milch. Each of these systems is written for the IBM-style personal computers and their clones. To test their ability to run on different generation machines, each program was evaluated on three different computers. The machines were chosen to represent the spectrum of the existing personal computer market; an older slower 8088 Turbo, a 286, and a 386. As would be expected, the slower the machine, the slower the software performed. Each package ran well, with the possible exception of *DataHawk* on the older 8088 Turbo. Both *DataHawk* and *Plover* are written using dBase. dBase becomes progressively slower as the amount of information it is forced to handle increases. One way to avoid this problem is through the use of a compiler. The programmer of *DataHawk* has made assurances that this problem is being corrected with such a device. If a 286 or higher machine is used, any of the programs should run well in their current form.

The first limiting factor in finding the right program is, what birds are covered by the database? Both *BirdBase 2* and *Sialis* contain a world list. If a world list is a requirement, then *DataHawk* and *Plover* will not be viable choices. *Plover* will have a European list in the future, but at this time it has not been completed. *DataHawk* has no current plans for a world list unless a demand is expressed. *BirdBase 2* handles the world list requirement well. Their world list of birds does not have to be combined with the list of North American species. The opportunity is available for expansion, but the system is unnecessarily burdened with extra material. This system may be ideal for those individuals who do not travel now, but would like the opportunity to add to their existing lists when their birding horizons broaden. *Sialis* is exclusively a world list. This is not necessarily a negative point for birders who do not need this feature. The system provides the option of selecting only the birds of North America (including most of Mexico) and just those species will be displayed for selection.

Each system handles its bird lists differently and this is the second point of review. *BirdBase 2*, *Plover*, and *Sialis* provide all species from the ABA and/or AOU area in taxonomic order. These lists must then be searched to find the desired species. *DataHawk* also has this feature, but allows for a more specific choice. With *DataHawk*, a number of different selections may be made: the birds of the ABA area, Continental North America, or a group of states (NC, SC, Va. and Ga). The system will even allow for more specificity by choosing just the birds of NC, or even one state's regularly occurring species. This is a wonderful option that allows the user to become familiar with a specific area's birds.

Each program, save *Sialis*, has a similar system for moving through its bird lists. The bird's full name may be typed and that record will be highlighted for entry or edit. Partial names may also be entered and the system will then jump to that area. If "vireo" was typed in, the screen would jump to the area on the list where vireos are located. *Plover* even allows for the entry of a code similar to that of the North American Bird Banders. *Sialis* requires the observer to pick a family group, such as Divers. The system will then list all the divers in the desired area of the world. The species is then chosen by entering the corresponding number next to the bird's name. A complete world list is provided with the system to aid in this process.

For all the time spent entering data, the system chosen should provide the desired information. This criterion should be the most important. If the program chosen does not allow for certain data, then it can not provide them as information later. *DataHawk* may be the lister's dream. When entering information, *DataHawk* automatically updates all relevant lists. It provides for year and state lists for all states and provinces, as well as a home county list. It can reference 100 of the birder's favorite areas and sort by year and species for these locations. *DataHawk* has the built-in feature for two separate birders, one for the primary observer and one for a birding companion. Both lists can be searched against each other and by any of the above categories to see what one birder has seen and the other has not. Besides displaying sightings in any of the given combinations, *DataHawk* can also provide what has not been seen in a specific state or area. This then allows for lists of target birds. In addition, *DataHawk* has two "special place" areas, which you choose. The system will provide a month by month spreadsheet of what species have been seen in these two frequented spots. *DataHawk* will also display a message if a bird is a lifer, state, or year bird.

There is also a wide variety of built in lists which *DataHawk* can produce, with the promise of more. Life lists can be printed in taxonomic or chronologic order. State lists can be printed, as well as specific counts of species seen in any area. With just a few keystrokes, *DataHawk* can provide a list of any or all states' countable species, all from a menu.

The upside to *Datahawk* far outweighs the down. The largest problem I have found concerns adding species to the lists. Sightings must be entered in the order they are observed. If a Loggerhead Shrike was spotted on the 2nd of September and 14th of October, the September Shrike would need to be the first bird entered into the system. *DataHawk* will place the first record of a given species into all relevant slots. If the October Shrike was entered first, the system would not recognize the September bird as being the year or state bird because the October bird would already be in those spaces. Only with life sightings will a previous date be recognized. For the industrious lister, this can be a problem if large amounts of past data are being entered.

Plover is quite similar to *DataHawk* in its construction and has many of the same features available, but to a different degree. This program does have an enviable feature that may make this system the choice for the "scientific" birder. *Plover* has the ability to search by a specific code determined by the user. The space for the codes is limited, but should be sufficient. Since the user determines the code, the user determines what information is important. Codes can represent almost anything the birder wants to keep up with: a code for "Bird reportable to American Birds," a code for the weather, a code for female, nest, bird singing; for most anything. A code can also be used to keep life and state lists for different birders. For example, lets say an FR was entered in the code space for every bird seen after the passage of a cold front. If information on the frequency of Canada Warblers observed after a cold front was desired, it would be a simple task. At the end of the season the system could be sorted by FR and Canada Warbler, then by Canada Warbler without the FR. The information then could be used to provide an answer. The code field has the opportunity to provide specific PREDETERMINED information. Because *Plover* is a dBase program, the industrious birder could modify the fields and potential for different types of information. *Plover*'s dBase construction allow the birder to sort by any field he/she wishes.

To retrieve information from *Plover's* database, the user must design what he/she wants. The lack of specific menus and the necessity of a personalized code system may cause the casual computer birder some problems. *Plover* is not as menu driven as *DataHawk* and much of the desired information would take longer to extract. *Plover's* strength lies in this flexibility, but effort must be put into this system to make this an advantage.

If a world list is a requirement, *BirdBase 2* may be the choice. A recent software improvement allows for quick review of the entire species listing. The previous time lag is no longer a large problem. *BirdBase 2* handles large amounts of information well and will not exceed the space limitation of the average hard drive. This program provides for an Inclusive, Nation, Region, Locale and Home list. The definition of what these fields mean must be determined by you. *BirdBase 2* has a similar code system to that of *Plover*, but it is much more limited. Instead of the option to enter any code in a single space for each species, as in *Plover*, *BirdBase 2* provides four spaces for a specific predetermined code. Each space must be a question and an X in that space would provide a yes answer. Example: You decide that Space 1 = singing bird, Space 2 = nest located, Space 3 = seen at favorite birding area, and Space 4 = seen with Todd. If you were birding at your favorite place with your birding pal Todd and heard a Bobolink singing, spaces 1, 3 and 4 under Bobolink would be checked. Each of these fields can then be sorted against any of the others to provide lists.

Sialis maintains records in a different manner than other systems. It stores every trip as a separate file, naming that file by the date upon which the birds were observed with the extension representing a location. To find the birds seen on a Christmas Count in North Carolina, both the date and what was used for the file extension would need to be known. Example: 12-15-90.NCa, this could represent the trip date: December 12, 1990 and the place, North Carolina.

Most of the information that other systems allow to be sorted must be entered to *Sialis* in document format. This basically means that it can not be sorted, at least I don't think it can. I found it difficult to determine how to retrieve the information I wanted once entered into the system. I may be underestimating the power of *Sialis*, but there is a lot to be said for good documentation.

A computer is not likely to replace your field notebook, but it can become an integral part of your birding experience. The information above should aid in the selection of a software program to meet a specific need. If any future information is desired about one or more of these products, most manufacturers have provided me with demo disks that I would be happy to pass on, as well as answer any questions.— *Roger D. McNeill*

Ordering Information:

DataHawk
Turnstone Software
1838 Barry Avenue
Los Angeles, CA 90025
(800) 654-5676

BirdBase 2
Santa Barbera Software Products
1400 Dover Road
Santa Barbara, CA 93103
(805) 963-4886

The Sialis System
A. Milch
461 Palmer Avenue
Teaneck, NJ 07666
(201) 836-1496

Plover
Sandpiper Software
9 Goldfinch Court
Movato, CA 94947

Animal Rights/Animal Welfare

The animal rights movement is impacting wildlife management programs across North America. Fish and wildlife management agencies, at both the Federal and state levels, are being challenged more often over traditional uses of animals such as hunting, trapping, fishing, and habitat management. Many wildlife professionals in the past took the view that the animal rights movement eventually would fade away, and, therefore could be ignored. However, the movement is growing, well-funded and effectively presents its arguments to many segments of the public. Nationally, there are approximately 400 animal activists groups, with estimated annual budgets of $250 million.

The methods used by the animal rights movement to challenge fish and wildlife management agency operations are numerous and varied. Issue number 89 discusses the animal rights/animal welfare movement. For a copy of Newsletter No. 89 or more information about the Fish and Wildlife Reference Service, call 1-800-582-3421.

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CBC

Kirtland's Warbler on the North Carolina Coast in Fall: Its Occurrence and Possible Significance

ELOISE F. POTTER & FRANK J. RADOVSKY

At approximately 1630 h on 28 September 1991, we saw a Kirtland's Warbler (*Dendroica kirtlandii*) perched on a bare limb low in the edge of a tall, dense clump of native evergreen shrubs beside a fence at the banker pony pen observation platform on Ocracoke Island, Hyde County, North Carolina. The bird was also seen by Christi and Shannon Stanforth, two relatively inexperienced bird watchers from Pittsboro, N.C. The four of us had been watching birds overhead (especially a Merlin, *Falco columbarius*), in the feed lot, and in the shrubs about 10 m from the northeast end of the platform for approximately 30 minutes when we noticed at least 10 Palm Warblers (*Dendroica palmarum*) of the Western race that were hawking insects from perches low in the edge of the shrubs. The mowed grassy area immediately outside the thicket, toward the platform, appeared to be a still zone protected from the fairly strong easterly winds; in that area, various flying insects (including dragonflies, beetles, and small moths) were observed with and without the aid of binoculars. At that time, Potter saw a yellow-breasted, gray-backed warbler emerge from the thicket and perch briefly in bright sunlight about 0.5 m above ground.

At first glance the bird suggested the Yellow race of the Palm Warbler or an immature Magnolia Warbler (*Dendroica magnolia*), but both possibilities were quickly eliminated when the bird made a single sortie in pursuit of an insect and returned to its perch; no tail spots were visible. The sudden movement of the bird attracted the attention of the other three observers. The warbler remained on the same perch for approximately 3 minutes, moving its tail up and down intermittently, somewhat in the manner of the nearby Palm Warblers though less rapidly and with more of a drooping and cocking action. During that time all observers studied the bird through binoculars and noted the gray upper parts streaked with black; the gray rump; narrow whitish wing bars; the solid bright yellow throat and breast, the latter heavily streaked with black on the sides; and the white belly and under-tail coverts. An indistinct whitish eye ring was the only noticeable facial marking, and there was no well-defined black streak through the eye. The faint eye ring and an overall dinginess, probably caused by remnants of buffy feather edgings, suggested a hatching-year bird, though the possibility of an adult female cannot be eliminated. Most authorities believe that age classes are impossible to separate in the field in fall, and we do not claim to be able to do so. Radovsky noted that the Kirtland's was definitely larger than the nearby Palm Warblers, being not only slightly longer but also generally more robust.

Although the four of us agreed on the significant field marks while the bird was present, no one called it by name. After it retired to the interior of the thicket, Potter (the only member of the group having previous experience with the species) turned to the double-page spread of fall-warbler illustrations in Robbins et al. (1983) and invited the other observers to find the bird; all three almost immediately selected the Kirtland's Warbler without realizing what it was until after the choice had been made. Bird guides by Peterson (1980) and the National Geographic Society (1983) also were consulted at the site. By the time we closed the books, the flock of Palm Warblers had departed.

The Kirtland's Warbler was in the same thicket with the Palm Warblers and made a single sortie in their direction, but it appeared to be only loosely associated with them. Sykes et al. (1989) indicated that Kirtland's Warblers, even the inexperienced young of the year, tend to migrate alone in the fall rather than in groups of conspecifics. However, several observers (e.g. Darnell 1956; Potter 1975; Craighill, this paper) have mentioned seeing single migrating *D. kirtlandii* associated with flocks of other species.

PREVIOUS NORTH CAROLINA RECORDS

Kirtland's Warbler has been reported from North Carolina on four previous occasions, all during the fall migration period. The Rev. Francis H. Craighill (1942) saw single birds at Rocky Mount on 2 September 1936, 22 September 1938, and 23 September 1941; and Zora R. Weisbecker (1987) saw a male in Iredell County on 29 August 1982. Craighill's sightings were accepted by T. Gilbert Pearson, Clement S. Brimley, and Herbert H. Brimley, the authors of *Birds of North Carolina* (Pearson et al. 1942), who knew Dr. Craighill well and respected his field ability, as well as by Mayfield (1960) and Clench (1973). Nonetheless, many North Carolina bird students have expressed concern that published accounts (Craighill 1937, 1942; Pearson et al. 1942) fail to provide details that clearly eliminate the possibility of confusion with similar species.

The best published account is found in a letter Dr. Craighill wrote to C.S. Brimley on 6 October 1941, thirteen days after his third observation of a Kirtland's Warbler at Rocky Mount and only eight days before his death on 14 October 1941. When it was published in *The Chat* (Craighill 1942), the letter was preceded by an editor's note that read, in part: "[The letter] gives a good picture of a busy man enjoying his hobby and through it contributing to our common knowledge. His field notes are being compiled into a pamphlet on the birds of Rocky Mount."

In the second paragraph of his last letter to Mr. Brimley, Craighill (1942) listed the Kirtland's Warbler along with his other noteworthy bird observations for August and September 1941. Obviously he was, as he had stated in his opening paragraph, "out quite a lot in the early mornings, sunrise to breakfast three or four times a week." In the third paragraph he commented:

> I realize, of course, that the record of the Kirtland's Warbler will be received with some grains of salt. It is the third time I have entered it on my records, the other two being Sept. 2, 1936, and Sept. 22, 1938. When I see a warbler with an eye-ring, dark head and back, citron-yellow breast with light streaking at sides, etc., answering the picture and description of a Kirtland's Warbler exactly and not matching anything else in the book, I just put it down as a Kirtland's Warbler. They have been reported from Virginia and South Carolina, and have to get across North Carolina somewhere. Perhaps this is their route.

In his concluding paragraph, Craighill added, "I use good ten-power glasses and try to be careful. ... If I ever have a chance I will try to collect a

Kirtland's Warbler; but they do not seem to wait until I can hunt up a boy with a gun."

Several years ago Potter found among the ornithological records of the late C.S. Brimley, in the archives of the North Carolina State Museum of Natural Sciences, two drafts of an unpublished manuscript entitled "Birds of the Rocky Mount Region From Notes of the Rev. F. H. Craighill" (Brimley 1942). The annotated list comprises 220 accepted species plus seven "Birds of Doubtful Occurrence." The first draft is a 21-page original typed on notebook paper. It bears a few corrections and additions printed in black ink in a style that compares favorably with known samples of Mr. Brimley's penmanship. Pencil notations (mostly the addition of the word "Eastern" to English names of birds) are in a different handwriting that is unfamiliar to Potter. Some species accounts refer to letters "Dr C." wrote to "CSB." The second draft is a carbon copy of a completely retyped 17-page version. Both drafts were prepared on a typewriter with print characteristics that match those of a machine used regularly by Mr. Brimley during the 1930s and early 1940s. A carbon of pages 2 through 21 of the first draft was also found among carbon copies of various manuscripts Mr. Brimley wrote about birds.

The second draft was sent to someone, apparently a native of Rocky Mount, for the purpose of obtaining comments on the relative abundance of the species. A cover letter written in blue ink and addressed to "Mr. Grey" (the Rev. John H. Grey, Jr., the first editor of *The Chat*) is attached to the second draft; the letter is dated 7 November 1942 and signed by "Frank" (apparently the Frank Williams mentioned in the Rough-legged Hawk and Philadelphia Vireo accounts in the Rocky Mount bird list). Terms of relative abundance appear on the bird list in black ink (apparently the work of C.S. Brimley) with amendments in Frank's handwriting. Personal information in the letter indicates that Frank would soon be attending the ant-aircraft Officers Candidate School at Camp Davis, N.C., and that future correspondence should be addressed to "Box 892, Rocky Mt., N.C."

There seems to be no reason to doubt that the Rocky Mount bird list found in the museum archives was compiled by C.S. Brimley as a memorial to Dr. Craighill (1875–1941; rector, Church of the Good Shepherd, Rocky Mount; elected a vice president of the North Carolina Bird Club at its organizational meeting, 6 March 1937; Potter 1986). No correspondence has been found that explains why the list was not published, and attempts to determine the whereabouts of Dr. Craighill's original bird notes have been unsuccessful.

The Kirtland's account from the unpublished manuscript (Brimley 1942) appears below. Although it provides a few additional details, it does not mention tail movement or the interruption of the eye ring, characteristics also omitted in the description of the bird seen in 1941 (Craighill 1942).

> On September 2nd, 1936 about 6 A.M. I was watching a number of small birds of several species playing and chasing one another through some small trees on the edge of the golf course near Rocky Mount. One of the birds lit on the ground about twenty or twenty-five yards from me. As soon as I got the glasses on it, I exclaimed to myself "Kirtland Warbler", for it was exactly the picture in the book come to life. Then with my glasses to my eyes, I recited to myself the

> points of the bird I was looking at: "Warbler size and bill, dark head, back and tail, yellowish breast and spotted sides". After a minute or two on the ground, the bird flew into a small tree, where I observed it further. It did not have the intensely yellow breast shown in Peterson's Field Book, but the more subdued yellow shown in Reed's Bird Guide and corresponding to the description citron yellow. One matter of interest to me was my instinctive use of the term "eye-cere" * * [asterisks indicate omission of words]. The eye ring of the Kirtland's Warbler is not a feather marking, but is a coloring of the eye lids.

FALL MIGRATION PERIOD

Departure dates for Kirtland's Warblers leaving the breeding grounds in Michigan (Fig. 1, hatched area) have only recently begun to be understood in detail. Mayfield (1960) stated that Kirtland's Warblers begin their departure in late August and nearly all have left by mid-September. An adult female has been found on the nesting grounds as late as 1 October (Sykes and Munson 1989), and migrants have been found within 460 km of the breeding grounds as late as 25 October (Sykes et al. 1989). Results of banding during the post-breeding period (Sykes et al. 1989) indicate that diminishing, though still substantial, numbers of Kirtland's Warblers remain on the breeding grounds well into September. Migration apparently occurs in two stages, with hatching-year birds departing early, from mid-August to early September, and many adults not departing until late September (Sykes et al. 1989). The 12 records from the Carolinas span the period from 28 August (Weisbecker 1987) to 29 October [1903] (Sprunt and Chamberlain 1970).

Clench (1973) documented a layover of at least 11 days for the immature bird that was banded at the Carnegie Museum's Powdermill Nature Reserve near Rector, Pennsylvania, on 21 September 1971. That bird gained weight while it waited, apparently, until northwest winds prompted it to continue its journey southeastward to the Bahamas.

Faver (1951), Darnell (1956), Clench (1973), and Weisbecker (1987) all commented that the occurrence of the Kirtland's Warbler was associated with an unusually heavy movement of fall migrants. The Kirtland's Warbler found on Ocracoke on 28 September 1991 was undoubtedly part of a vast wave of land birds that arrived on the Outer Banks following the passage of a cold front on 26 September, a fall land-bird migratory pattern well documented by Sykes (1986). Attempts by a number of CBC members to relocate the bird on 29 September were unsuccessful.

FALL MIGRATION ROUTES

Data on the fall migration of Kirtland's Warblers are too sparse to permit a definitive description of the route or routes the birds follow. Mayfield (1960) proposed a straight-line route from the nesting grounds across the southern Appalachian Mountains to southeastern South Carolina and the Bahamas. Recently, Mayfield (1988) used existing migration data to support his belief that successful migrants not only follow the straight-line route but also make the flight non-stop. Downed migrants become more widely scattered as the

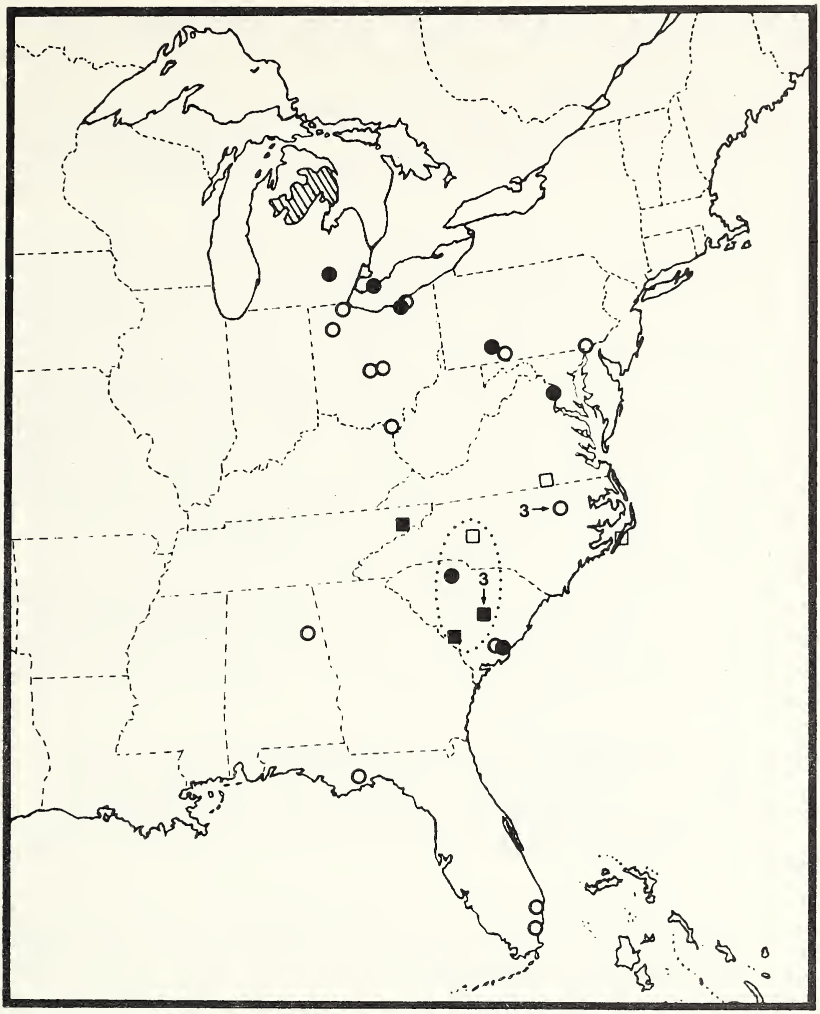

Fig. 1. The map shows fall migration records of the Kirtland's Warbler accepted by Clench (1973, figure 2) through 1972 as modified to include records from Virginia, Tennessee, and the Carolinas that she rejected or did not have available for consideration. Hatched area indicates the nesting grounds. Open circles indicate pre-1973 sight records accepted by Clench; solid circles = pre-1973 specimens and banding reports accepted by Clench; solid squares = pre-1973 published sight reports accepted by state bird records committees but omitted by Clench; open squares = published post-1973 sight records; 3 = three sight records from same locality.

birds approach their destination, like pellets fired from a shotgun (Mayfield, personal communication). Thus, sightings are considerably more numerous and widespread in the Southeast in fall than in spring.

Clench (1973) proposed a post-1935 fall migratory route eastward "from Michigan across Ohio and southern Pennsylvania (crossing the Appalachians at a relatively low point) and then perhaps following the Piedmont or the inner coastal plain to the southeast coast before the over-water flight to the Bahamas."

The first known occurrence of a Kirtland's Warbler in coastal North Carolina (present paper) and several other reports from the southeastern United States that Clench (1973) rejected or did not have available for consideration (their being unknown to her in 1972 or having occurred since then) indicate a need to re-examine the case for a pre-1935 route vs. a post-1935 route. Figure 1 shows Clench's (1973, figure 2) map of accepted fall migrants through 1972 as modified to include Greene County, Tenn. (Darnell 1956); Mecklenburg County, Va. (Potter 1975); Ocracoke Island, N.C. (present paper); Iredell County, N.C. (Weisbecker 1987); Eastover, S.C. (Faver 1949, 1951, 1967); and Aiken, S.C. (Hatcher 1960). The four reports from South Carolina have been accepted by those who maintain the ornithological records for the state (Sprunt and Chamberlain 1970, Post and Gauthreaux 1989).

Darnell (1956) provided a convincing description of a Kirtland's Warbler that she observed for approximately 30 minutes on 28 September 1956, while it associated with Palm Warblers and a Yellow-rumped (Myrtle) Warbler (*Dendroica coronata*) and fed in low pines in a woodland edge at her home near Greeneville, Greene County, Tenn.

> It had a very dark back, all yellow below, dark streaks on its sides below wings, faint white wing-bars, and an eye-ring that didn't seem to be continuous; and it continually wagged its tail. ... Part of the time it was with a Myrtle Warbler and compared closely to the size of the Myrtle.

Mrs. Darnell's report is the only published Tennessee record of Kirtland's Warbler and the basis for its inclusion as a provisional species on the "Official List of Tennessee Birds" (Nicholson 1983 and personal communication). Greeneville lies along a straight-line route joining the breeding grounds, the Columbia-Eastover area of South Carolina, and the Bahamas. The position of Iredell County, N.C., relative to northeastern Tennessee and southeastern South Carolina further supports continued use of a fall migration route across the southern Appalachians. The cluster of one pre-1935 specimen and five post-1935 sight records within a elliptical area (Fig. 1) extending from Iredell County, N.C., to Aiken, S.C., represents the greatest concentration of fall-migrant occurrences south of Ohio.

Particularly striking from a North Carolina perspective is the absence of historical Kirtland's Warbler specimens from the Raleigh area, where C.S. Brimley collected many rare birds, including two Bachman's Warblers (*Vermivora bachmanii*) in 1891 (Pearson et al. 1942). Even more perplexing, in the light of the migratory route proposed by Clench (1973), is the absence of post-1935 banding records or sight reports from the Raleigh-Durham-Chapel

Hill area, which has been a region of intensive bird study during most of the period from the mid-1930s to the present. Although the cluster of records from southern Pennsylvania to Rocky Mount (Fig. 1) supports the Piedmont and inner coastal plain route proposed by Clench (1973), the new record from Ocracoke suggests a drifting or funneling of migrants from the Kerr Lake area (eastern Piedmont) southeastward across the outer coastal plain to the barrier islands of northeastern North Carolina. One such route would take the birds more or less down the Tar River from Rocky Mount to the Pamlico River and across Pamlico Sound to sparsely populated Ocracoke Island or to the unpopulated barrier islands lying between Ocracoke Inlet and Cape Lookout. Cape Lookout (ca. 825 km N of Great Sale Cay) might well serve as a convenient departure point for the flight over the Atlantic Ocean to the Bahamas. The Tar River route would not only avoid all of the major cities in Piedmont North Carolina, but also cause the birds to reach the coast between the intensively studied Bodie-Pea Island area (e.g. Sykes 1986) and the major centers of bird study in southeastern North Carolina (e.g. Morehead City and Wilmington). Furthermore, following a river would be consistent with the reported tendency of fall-migrant Kirtland's Warblers to frequent thickets and woodland edges just beyond the wet margins of lakes and swamps (Potter et al. 1980).

On the other hand, the Ocracoke bird might just as well have been an offshore migrant blown landward by the strong easterly winds of September 28.

Given their habit of traveling alone in fall migration or associating with birds of other species, it seems likely that Kirtland's Warblers, particularly the young of the year, follow many different routes southward. The dots on our maps may reflect nothing more than the good fortune of a few collectors, banders, and bird watchers who happened to be in the right place at the right time. However, the temptation to interpret the significance of the dots is irresistible.

Data from the Carolinas, Tennessee, and Virginia (Fig. 1) seem to support both the straight-line route (Mayfield 1960, 1988) and an easterly route via southern Pennsylvania (Clench 1973). It seems entirely possible that most of the fall-migrant Kirtland's Warblers fly non-stop to the Bahamas on a straight-line course, with a few birds stopping to rest and feed in eastern Tennessee, in southwestern North Carolina, and throughout most of South Carolina. At the same time, it appears that quite a few birds drift eastward soon after leaving the breeding grounds. Once off course, these birds may continue eastward and southward until they reach the Atlantic Ocean and begin the over-water flight to the Bahamas. So far, there is no evidence one way or the other regarding the ability of downed birds to reach the Bahamas.

Should significant numbers of Kirtland's Warblers actually migrate from Pennsylvania to the Kerr Lake region and southeastward to Ocracoke, there seems to be little hope for documenting that movement. To the best of our knowledge, only one person, Dorothy Foy at Oriental in Pamlico County, actively bands fall-migrant land birds in northeastern North Carolina, and no one salvages the birds that undoubtedly are killed each fall at the numerous radio and television transmission antennas near the Tar and Pamlico rivers. Systematic salvaging from the Voice of America sites in Pitt and Beaufort counties might not produce a Kirtland's Warbler specimen, but such a project would most certainly provide valuable information on fall migration from a part of North Carolina that has not been studied adequately.

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North Carolina State Museum of Natural Sciences, P.O. Box 27467, Raleigh, NC 27611.

Call for assistance!

The U.S. Fish and Wildlife Service has authorized a special marking program to assist in learning more about hummingbirds in our area. Beginning in mid-March of 1992, hummingbirds will be given standard USFWS bands on the left leg and a plastic colored band on the right; it will be a bright color and highly visible. In addition, there well be an approved, non-toxic color dye applied to various body parts. Anyone seeing such birds is requested to report as much of the following information as possible:

1. the species and sex, if known
2. what color was visible and its location on the bird, i.e. head, leg, back, breast, etc.
3. name of town where seen
4. date bird was seen
5. is bird suspected of nesting in the area or on their property?
6. name, address and phone number of person reporting.

Reports should be made in writing to Dorothy and Roger Foy, P.O.Box 457, Oriental, NC 28571 or by phone at 919-249-0803 (you can leave a message on the answering machine). All contacts will be acknowledged by return mail.

CBC Rare Bird Alert
(704) 332-BIRD

General Field Notes

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NOTICE

Publication of any unusual sightings of birds in the Field Notes or Briefs for the Files does not imply that these reports have been accepted into the official Checklist of Birds records for either North or South Carolina. Decisions regarding the official Checklists are made by the respective State Records Committees and will be reported upon periodically in THE CHAT.

Observations of a Northern Wheatear on the North Carolina Outer Banks

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Early in the afternoon of 2 October 1987, while driving northward along NC 12, just south of Avon, N.C., on the Outer Banks, I spotted an unfamiliar bird perched on a large power line. I made a quick U-turn, and, using my binoculars, got within good viewing distance. After consulting the National Geographic field guide, I was certain I was looking at a Northern Wheatear (*Oenanthe oenanthe*).

After studying the bird at close range for about 15 minutes, I called Marcia Lyons, interpreter at Cape Hatteras National Seashore, who soon arrived and also studied the bird. Later that day, Allen Bryan, Derb Carter, Ricky Davis, Harry LeGrand, Merrill Lynch, and Wayne Irvin also studied the bird, still in the same general area. Bryan saw the bird just before dark. Several people searched the area thoroughly the next morning, beginning at daybreak, but, apparently, the bird had departed.

Collectively, the bird was studied for over an hour. It was seen as close as 30 feet, and was studied both with 9x and 10x binoculars, and 25x telescopes, usually with excellent lighting conditions. The bird appeared to be roughly of the same length and bulk as an Eastern Bluebird (*Sialia sialis*), but held its body more horizontally than that species. The crown, nape, and back were brown. The wings were a darker brown. The underparts were a warm cinnamon-buff, except for the undertail coverts, which were slightly more whitish. Seen well was the very distinctive rump-tail pattern (white rump, white upper tail coverts, and white on proximal portions of the outer rectrices, contrasting with the brown back, brown middle rectrices, and brown distal portions of the outer rectrices). The tips of the rectrices were buffy. There was a light superciliary stripe. The bird had the dark face patch shown in the National Geographic field guide, but the patch was quite subdued. The bill and legs were dark.

The bird, which was quite tame, fed on insects on and near the ground, often by pouncing onto its prey from elevated perches—flat-topped cottages, and the wide upper surface of a large sign.

Ricky Davis took several color photographs of the bird. The North Carolina Bird Records Committee has reviewed these photographs and determined that they are definitive. With publication of this record, Northern Wheatear can be added to the official North Carolina list (Chat 54:57). Duplicate slides have been deposited at the North Carolina Museum of Natural Sciences, and with VIREO (the Academy of Natural Sciences, Philadelphia).

This is only the second North Carolina record for this primarily Eurasian species. The first record was a sighting by Stephen Murphy at Franklin, Macon County, on 11 October 1981 Chat 46:82-83). In Virginia, there are three fall records and one spring record (Virginia Society of Ornithology 1987). There is also a fall record for South Carolina (Chat 24:102).

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Praying Mantis Kills Hummingbird

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On 28 August 1990, my wife, June R. Conway, noticed a Ruby-throated Hummingbird (*Archilochus colubris*) drop to the ground from one of our hummingbird feeders. Upon examining the bird, a first year male, she found that it had been eviscerated. Still on the feeder was the culprit, a praying mantis (*Mantis religiosa*).

Despite their agility in flight, hummingbirds do fall victims to a variety of predators and environmental hazards such as spider webs and thistles, Winsor Marrett Tyler (in Bent) cites reports of hummingbirds being caught by a dragonfly (Insecta: Odonata), Merlin (*Falco columbarius*), and a bass (*Micropterus* sp.?) which leaped out of the water to catch a low-flying individual. Terres (1980) cites reports of predators which captured hummingbirds: tropical Bat Falcon (*F. rufigularis*), Merlin, American Kestrel (*F. sparverius*), Sharp-shinned Hawk (*Accipiter striatus*), Brown-crested Flycatcher (*Myiarchus tyrannulus*), orioles (*Icterus* sp.?), and tropical frogs.

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First bandings of Connecticut Warblers (*Oporornis agilis*) in South Carolina

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Although no Connecticut Warblers (*Oporornis agilis*) had been captured, marked, and released in South Carolina prior to 1990, four birds were banded during migration in September 1990 and May 1991.

The first Connecticut Warbler banded in the state was an unsexed immature bird captured about 19 km east of Sumter (Lat. 33°50'N, Long. 80°10'W) on 17 September 1990 by Evelyn Dabbs and subpermittee Lex Glover (Glover, pers. comm.). In May 1991 I captured three additional Connecticut Warblers at my banding station at Hilton Pond near York, South Carolina (Lat. 34°50'N, Long. 81°10'W). According to the federal Bird Banding Laboratory in Laurel, Maryland, these four birds are the first Connecticut Warblers banded and released in the state (D. Bystrak, pers. comm.).

Connecticut Warblers are very rare migrants in South Carolina. Post and Gauthreaux (1989) list only 12 acceptable records for this species in the state, four of which are study skins at The Charleston Museum or Clemson University. A fifth specimen, an immature (sex unknown) taken by Douglas B. McNair on 19 September 1990 at James Island, was three days earlier than any published fall record for the species in South Carolina (Post, pers. comm.), but Dabbs' Sumter bird preceded it by two days.

I sexed all three spring migrants at York as females because they lacked the dark gray bib, throat, and hood that are characteristic of breeding males; all had pale hoods, throats, and bibs similar to those depicted in standard field guides for female Connecticut Warblers. The first bird (U.S. Fish & Wildlife Service band #2091-21411), was netted between 0900 h and 1000 h on 13 May; its 70 mm wing chord and 48 mm tail made it the largest of the three captures. The second (#2091-21414) was netted between 0845 h and 0945 h on 14 May and had a 66 mm wing chord and 48 mm tail. The third bird (#2091-21444) was netted between 0730 h and 0830 h on 24 May—later by four days than any spring migrant Connecticut Warbler on record for the state (Post and Gauthreaux 1989); this bird measured 64.5 mm (wing chord) and 48 mm (tail).

Based on its acute, worn rectrices, and an overall dull coloration, the third warbler was apparently a Second-Year (SY) bird hatched in 1990; this individual also had a slightly darker edging along the bottom of the bib, but I judged it too pale to be an immature male. I was unable to precisely age the other two birds either by plumage or skull pneumatization and classified them as After Hatch-Year (AHY).

The only eastern species with which the Connecticut Warbler is likely to be confused in spring is the Mourning Warbler (*Oporornis philadelphia*), in which color patterns are similar but the eye ring is absent or incomplete; all three birds at York had complete white eye rings. In addition, their wing chord measurements fell within the typical range of 63–75 mm for Connecticut Warblers (Pyle et al. 1987). The third bird's wing chord of 64.5 mm was within the 53–65 mm range for the Mourning Warbler, but the combination of other characteristics (especially the eye ring) ruled out that species. Dabbs' bird (#980-86914) at Sumter also had a noticeable eye ring and a wing chord of 67 mm.

The birds at York were captured in standard mist nets (4-shelf, 12 m long, 2 m high) with 30- or 36-mm mesh diagonals. Each bird was snared in a different net but always in a shelf approximately 1.5 m above the substrate. The nets were within 1 m, 18 m, and 25 m of a 1.1 ha pond bordered primarily by hazel alder (*Alnus serrulata*) that was, in turn, surrounded by old fields from eight to 12 years into succession. The net lane closest to the pond was in an alder thicket, while the other two were in mixed vegetation dominated by sweetgums (*Liquidambar styraciflua*), Eastern red cedars (*Juniperus virginiana*), and winged elms (*Ulmus alata*) approximately 4–5 m tall. The Sumter bird was captured by a net in similar habitat: shrubby growth along a low wet area on the edge of the Black River swamp.

Connecticut Warblers have circuitous migration routes. They typically leave South American wintering grounds in spring, fly north to Florida, then cut diagonally westward to the Mississippi Valley and northward to breed in the Canadian muskeg and northernmost Great Lakes states. In autumn they leave the breeding grounds, fly east to New England, south along the Atlantic Coast to Florida and the West Indies, and back to Venezuela, Colombia, and Brazil (Harrison 1984). These routes may explain why five published South Carolina spring records were from the Piedmont, while five fall records were from the coastal plain (Post and Gauthreaux 1989). The first South Carolina specimen of a Connecticut Warbler was taken in Chester in 1889 (Sprunt and Chamberlain 1970), but the species was not known from the coast until one was seen on 22 September 1967 at Garden City (Smith 1968). In 1991, an exceptionally stormy spring in the south central region of the U.S. may have caused more Connecticut Warblers to migrate northward along an easterly route through the South Carolina Piedmont.

During migration the Connecticut Warbler tends to seek out thickety wet bottomlands (Sprunt and Chamberlain 1970) that are not easily accessible to human observers. Its olive green dorsum, gray head, throat, and bib, and pale yellow undersides—plus its habit of walking rather than hopping or flitting about in the undergrowth—combine to make the Connecticut Warbler a difficult species to find and identify even in locations where it is common.

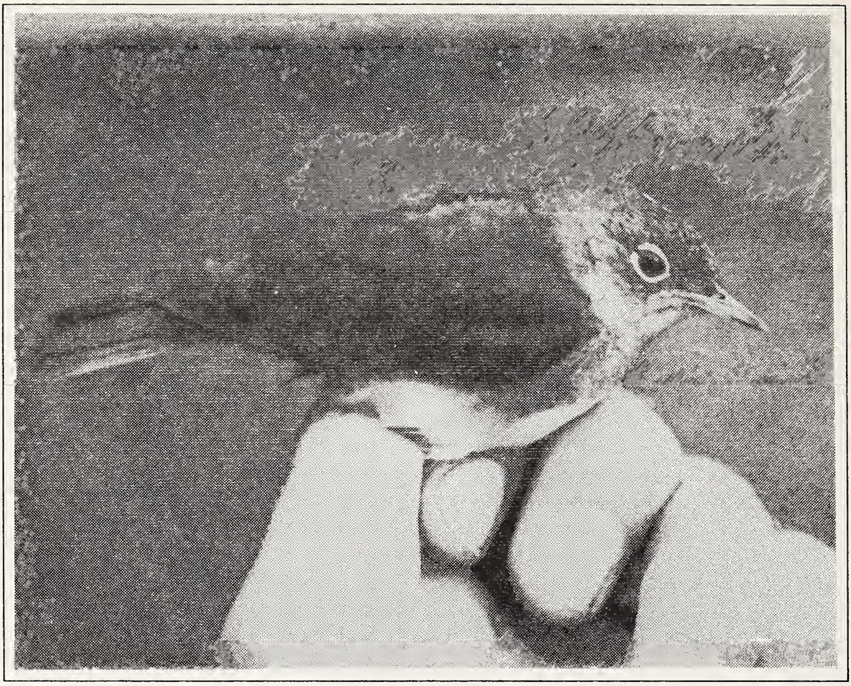

Fig. 1. Connecticut Warbler #2091-21411 captured and banded at York, S.C. on 13 May 1991. Photo by the author.

All three Connecticut Warblers captured at York were photographed before release; color transparencies of bird #2091-21411 were submitted to The Charleston Museum (Fig. 1).

I thank Danny Bystrak of the Bird Banding Laboratory and Will Post for providing information that was used in preparing this report; Lex Glover informed me about the Connecticut Warbler banded at Sumter. Activities at the Hilton Pond banding station are funded in part by the Nongame Program of the South Carolina Department of Wildlife and Marine Resources.

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First Record of Little Stint in North Carolina

DERB S. CARTER, Jr., RICHARD E. DAVIS,
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On the afternoon of 22 July 1989, at the tidal pond at Cape Hatteras, Buxton, North Carolina, we observed an adult Little Stint (*Calidris minuta*) in alternate plumage. The Little Stint was foraging with approximately forty other shorebirds on a small mud flat at the margin of the tidal pond.

Our attention was first drawn to the small sandpiper by the warm rufous coloration of its upper parts. Several Least (*C. minutilla*), Western (*C. mauri*), and Semipalmated (*C. pusilla*) Sandpipers nearby allowed direct comparison. The Little Stint was intermediate in size between the Least and Western Sandpipers, and approximately the same size as nearby Semipalmated Sandpipers. It was noticeably elongated at the rear, due to its longish wings, and the "jizz" of a Baird's (*C. bairdii*) or White-rumped (*C. fuscicollis*) Sandpiper.

The following field marks were carefully noted at close range with binoculars and spotting scopes. The bill was black and about the same length, but definitely thinner than, bills of all Semipalmated Sandpipers seen in comparison. Legs were black with no webbing between toes. The warm, orange-rufous coloration of the upper parts was striking. The back was streaked rufous with two distinct whitish lines that converged, but did not meet, from the upper back to between the folded wings. The head was rufous on the crown with fine blackish streaks, rufous on the nape and cheeks, with a distinct whitish supercilium. Feathers of the coverts on the folded wing were dark-centered with rich rufous-orange margins on the scapulars and a paler ocher margin on the other coverts.

The under parts were white with a warm rufous wash across the breast with fine streaks and spots prominent on the collar and sides of the breast. The throat was white in contrast to the wash of rufous across the upper breast.

We observed the stint for several hours on the afternoon of 22 July. The bird was located at the same site on 23 July, when it was seen by several other observers. It was last reported at the site on 25 July.

The Little Stint is a Eurasian species and is a rare vagrant in North America. It is similar in appearance to the Rufous-necked Stint (*C. ruficollis*), another Eurasian species which is a rare vagrant on the Atlantic coast. The observers feel certain that the bird observed at Cape Hatteras is a Little Stint and not a Rufous-necked Stint. Carter had just returned from a trip to Japan where he observed hundreds of Rufous-necked Stints. The distinct whitish "V" on the back, slender bill, wing coverts all rusty or buffy (Rufous-necked has grayish wing coverts and lower scapulars), white throat and the warm wash across the breast with fine spots and streaking were distinguishing field marks.

Migrant shorebirds on the North Carolina coast in late July are largely adults in alternate (i.e., breeding) plumage. This is thus the best time to search for vagrant Calidris sandpipers (Rufous-necked and Little Stints) which are almost impossible to identify except in alternate adult plumage.

This is the first report of Little Stint for North Carolina and is believed to be the southernmost report for the Atlantic Coast of the United States. Photographs taken of the Little Stint were submitted to the N.C. Bird Records Committee for review. "Photos have been reviewed by the Committee and considered to document the sighting." (Chat 54:55).

[1] Mailing address of first author only.

BOOK REVIEW

BIRDS OF THE SMOKIES

Fred Alsop. 1991. Great Smoky Mountains Natural History Association.
Gatlinburg, TN 37738. Softback. 167 pp. $9.95.

Perhaps the first thing that should be said about this charming little book is that it is *not* intended to be a field guide. As the author carefully points out, there are many books on the market that are designed to help you identify birds. This is not one of them. This is a book designed to help you to enjoy the birds that you have identified within the area of the Great Smoky Mountains National Park. Not only do I think that the book succeeds in this goal, but the National Park Service awarded it first prize in its biannual competition for best park guide in the category of birds.

Its small size (4.5 x 6 in.) allows it to fit easily into a jacket pocket and the waterproof, tearproof cover is ideal for the damp, abusive environment of the mountains. It also has a good Smythe sewn binding that the publisher claims will holdup for years. In spite of its compact size, it includes 168 pages with color photographs and good descriptions of the 100 most common birds of the Great Smoky Mountains National Park. There is a map of the Park, a checklist of birds that have been seen in the park (don't spend a lot of time looking for some of them, such as the Band-rumped Storm-Petrel or the White Pelican), and a lot of good advice on how to function in the Park. The species descriptions have an innovative little chart for describing the time of year and the elevation at which you are likely to find each of the species.

What many birders will find particularly interesting are directions for how to find the most sought-after specialties of the Great Smokies; things like Northern Saw-whet Owl, Swainson's Warbler, and Red Crossbills. These instructions alone are probably worth the $9.95 purchase price.

The book is available at visitors centers in Great Smoky Mountains National Park or by contacting the Great Smoky Mountains Natural History Association, 115 Park Headquarters Road, Gatlinburg, TN 37738 or you can telephone (615) 436-7318. Add an extra $3.25 for postage and handling. North Carolina residents are requested to include an additional 60¢ to cover sales tax; Tennessee residents add 80¢. South Carolina residents are not subject to sales tax by mail order.—H. T. Hendrickson

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1991)

EARED GREBE: Paul Saraceni observed one in breeding plumage on 12 March in Core Sound near Lola, N.C.

PELAGIC OBSERVATIONS ALONG AND OFF THE NORTH CAROLINA COAST: The following totals were made in May. The letter is the location and observers, and the number in the table heading is the date in May.

A	pelagic trip off Beaufort Inlet (Ricky Davis)
B	pelagic trip off Oregon Inlet (Mike Tove party)
C	observations from shore at Cape Hatteras point (Robert Ake party)
D	pelagic trip off Hatteras Inlet (Ake party)
E	observations from shore at Cape Hatteras point (Kevin Calhoon party)
F	pelagic trip off Oregon Inlet (Tove party)
G	pelagic trip off Beaufort Inlet (John Wright)
H	pelagic trip off Oregon Inlet (Merrill Lynch party)
I	observations from shore at Cape Hatteras point (Tove party)

	A	B	C	D	E	F	G	H	I
	11	18	21	22	24	25	25	26	26
Black-capped Petrel		120		30		9		30	
Herald Petrel				1-2					
Soft-plumaged Petrel						1			
Cory's Shearwater		7	2	150	8	43	3	3	
Greater Shearwater				20					
Sooty Shearwater			50	6	44	5		3	3
Manx Shearwater			1	1					
Audubon's Shearwater		18		8	1	34		3	
Wilson's Storm-Petrel	25	165	20	120	1	109	40	72	4
Leach's Storm-Petrel	1		6	15	1	2	3	4	3
Band-rumped Storm-Petrel						?	1		
tropicbird (sp?)							1		
Northern Gannet		1			8	4			3
Red-necked Phalarope	35	37				4	6		
Red Phalarope	3								
jaeger (sp?)	2					10			
Pomarine Jaeger	1	1	15	22	5	10	10	6	
Parasitic Jaeger			3	2		2	1		1
Long-tailed Jaeger	1		3	7	1		1		
South Polar Skua				2		4			
Black-legged Kittiwake			3		4				
Roseate Tern	1								
Arctic Tern	3	3	?			8		5	
Bridled Tern		1						3	
Sooty Tern				2					
Brown Noddy						1			

HERALD PETREL: Robert Ake and party saw an intermediate-phase bird, and an apparent dark-phase bird, southeast of Cape Hatteras, N.C., on 22 May. A photo of the intermediate-phase bird was printed in *American Birds* 45:511. Full details are expected to be published elsewhere.

SOFT-PLUMAGED PETREL: One was observed off Oregon Inlet, N.C., on 25 May by Mike Tove, Harry LeGrand, Ricky Davis, and others. Full details have been submitted to a national journal.

MANX SHEARWATER: Seldom reported in May were single birds seen on two dates by Robert Ake and several European birders (see Table).

LEACH'S STORM-PETREL: In addition to many records from North Carolina (see Table), one was rare and early off Charleston, S.C., as seen by Dennis Forsythe on 1 May.

BAND-RUMPED STORM-PETREL: The individual seen off Beaufort Inlet, N.C., on 25 May by John Wright (see Table) was one of the earliest reports for the state.

AMERICAN WHITE PELICAN: Lex Glover and others saw two pelicans on an impoundment at Bear Island Wildlife Management Area, S.C., on 16 May.

GREAT CORMORANT: John Fussell noted a late immature at Ocracoke, N.C., on 17 May, and even later were two subadults seen by Fussell on 25 May at Cape Lookout, N.C.

DOUBLE-CRESTED CORMORANT: Simon Thompson observed two migratory flocks, totaling 44 birds, at Tryon, N.C., on 25 April.

ANHINGA: The species has been suspected of nesting in the Roanoke River floodplain in eastern Halifax County, N.C., for several years. This is the locale where Ricky Davis saw two soaring on 4 May.

GREAT BLUE HERON: What appear to be the first reported nestings of the species in the piedmont of the Carolinas occurred this spring, at two North Carolina locations. James Parnell saw 18 to 20 active nests in a swamp east of Salisbury, near High Rock Lake, during an aerial search for eagle nests on 17 March. Ken Knight saw at least four active nests in the spring at a large beaver pond complex near Clark Creek in western Cabarrus County.

GREAT EGRET: Eric Dean saw two individuals each on 15 March and 2 April, at different sites in the Goldsboro, N.C., area.

SNOWY EGRET: Very rare inland in spring, five were noted at Bunn's Lake near Zebulon, N.C., on 19 April (Ricky Davis); one was seen near Durham, N.C., on 21 April (Scott Hartley, Edith Tatum); and one was seen near Goldsboro on 4 May (Eric Dean).

BLACK-CROWNED NIGHT-HERON: This species migrates at night over the inland parts of the Carolinas, but is only infrequently reported. Paul Hart heard two calling overhead on the evening of 13 April at Raven Rock SP, N.C., and he saw and heard another overhead there on 27 April.

YELLOW-CROWNED NIGHT-HERON: Always notable inland, an adult was seen along Neals Creek near Lillington, N.C., on 27 April (Paul Hart, Mike Peters).

GLOSSY IBIS: The only inland report for the spring season was one bird seen near Fayetteville, N.C., on 30 March by Philip Crutchfield and Doris Chambers.

SNOW GOOSE: Simon Thompson saw one in flight over Chimney Rock Park, N.C., on 23 March, for a rare record for the foothills.

GREEN-WINGED TEAL: Eric Dean observed as many as two birds at Goldsboro from 27 May to 24 June.

EURASIAN WIGEON: A male was again reported at the impoundment near Davis, Carteret County, N.C., this season on 12 March by Paul Saraceni.

AMERICAN WIGEON: Herb Hendrickson noted a very late male wigeon at Lake Brandt near Greensboro, N.C., on 29 May.

REDHEAD: Almost two months later than normal was a female carefully studied by Betty McIlwain and Norma and Bill Siebenheller at a lake at Brevard, N.C., on 19 May.

LESSER SCAUP: Sam Cooper noted two at Eagle Island near Wilmington, N.C., on 20 May, and one of the birds (a male) remained through 2 July.

HARLEQUIN DUCK: The only spring report was a female seen on 13 April at Huntington Beach SP, S.C. (Henry and Elizabeth Link).

OLDSQUAW: Seldom reported in breeding plumage in the Carolinas, one such male Oldsquaw was seen by Simon Thompson on the rather late date of 5 April at Edisto Beach, S.C.

TURKEY VULTURE: Very rare on the Outer Banks in spring, one was unusual at Oregon Inlet on 9 March (Russ Tyndall).

OSPREY: During a hawk watch at Tryon, N.C., Simon Thompson counted 35 Ospreys migrating northward on 15 April.

AMERICAN SWALLOW-TAILED KITE: Migrants seen along the North Carolina coast, all single birds, were: a mile north of Southport on 27 March (Fred Annand), at Hampstead on 3 May (Sam Cooper), at Buxton on 18 May (Keith and Diane Andre, Neal and Pat Moore), and at the north end of Ocracoke Island on 27 May (Russ Tyndall).

NORTHERN HARRIER: An adult male was seen on 24 May near US 64 in Tyrrell County, N.C., by Jeff Pippen and Jim Paton.

BROAD-WINGED HAWK: Probably a late migrant was one seen near Shallotte, N.C., on 27 May by Ricky Davis. Notable spring counts of migrating Broad-wingeds are seldom made in the Carolinas; however, Simon Thompson counted 340 migrating north at Tryon on 15 April.

GOLDEN EAGLE: A notable record was one seen by Peter Worthington, Dennis Forsythe, and other Carolina Bird Club members near Jones Gap SP, S.C., on 27 April.

MERLIN: Simon Thompson saw two birds in migration at Tryon on 15 April, and Rick Knight saw a migrant on 16 April at Roan Mountain, N.C.

PEREGRINE FALCON: One was seen by John Wright at Cape Hatteras point on 11 May, the latest report of the species from the coast this season.

KING RAIL: Though the species has been found regularly at Alligator River NWR on mainland Dare County, N.C., in summer, Harry LeGrand noted conclusive breeding when he saw a pair of adults with six chicks crossing a road there on 24 May.

BLACK-BELLIED PLOVER: Very rare in the mountains, one plover in winter plumage was found in a wet field near Calvert, Transylvania County, N.C., on 13 April (Betty McIlwain, Norma and Bill Siebenheller). Another inland bird was seen at the Morganton-Lenoir, N.C., airport on 18 May (Merrill Lynch, John Wright).

LESSER GOLDEN-PLOVER: Bob Wood found one in winter plumage in a plowed field near Hopkins, S.C., on 4 May; it was seen on the following day by Lex Glover and Kevin Calhoon.

UPLAND SANDPIPER: Eric Dean had a good total of ten birds from 18 to 20 April at Cherry Hospital near Goldsboro. Rare for the mountains was one seen on 10 May at the Brevard College campus, N.C., by Betty McIlwain.

SANDERLING: The only inland spring report was one seen at Winston-Salem, N.C., from 21 to 23 May (Ramona Snavely, Tom Mowbray, and others).

WESTERN SANDPIPER: Late individuals were seen on 16 May (a banded bird) at Bear Island, S.C. (Lex Glover) and on 22 May at Eagle Island, N.C. (Sam Cooper).

WHITE-RUMPED SANDPIPER: The best coastal count for the season was 38 at Bear I. on 9 May (Lex Glover). Single birds were found inland on 11 May at Fayetteville (Philip Crutchfield) and 15 and 16 May at Goldsboro (Eric Dean), and four were found at Winston-Salem on 21 May (Ramona Snavely, Tom Mowbray).

CURLEW SANDPIPER: Two birds in breeding plumage were observed by Mike Tove, Ricky Davis, and party at North Pond on Pea Island, N.C., on 26 May. Another bird in breeding plumage was a good find at Oregon Inlet on 18 May (John Fussell).

STILT SANDPIPER: An excellent spring count was 200 birds seen by Lex Glover, Kevin Calhoon, and Jim Beatty at the spoil area in southern Jasper County, S.C., on 4 May.

LONG-BILLED DOWITCHER: Ricky Davis saw and heard one, in comparison with Short-billed Dowitchers, at Eagle Island near Wilmington on the very late date of 27 May.

WILSON'S PHALAROPE: Always a good find inland at any season, single birds were found on 18 May at Winston-Salem (David Disher) and on 27 May at Goldsboro (Eric Dean).

RED-NECKED PHALAROPE: At a sewage treatment plant at Winston-Salem, three were seen on 19 May by Doug DeNeve and Anne Newsome. Six were there on 21 May (Ramona Snavely), and two were there on 23 May (David Disher). Also inland, a female was noted by Eric Dean at Goldsboro on 16 May, and Dean found a male there on 27 May. In addition to a few single birds scattered at ponds along the North Carolina coast in May, a total of seven was seen by Greg Massey and Sam Cooper on 20 May at Eagle Island, and John Fussell saw five in Hatteras Inlet on 19 May.

RED PHALAROPE: One in winter plumage was very late from 20 to 25 May at Eagle Island, as noted by Greg Massey and Sam Cooper. The best of several totals from off the North Carolina coast in March and April was 75 observed off Beaufort Inlet on 12 April (John Fussell, Bob Holmes).

LONG-TAILED JAEGER: This species was seen in noteworthy numbers from the North Carolina coast and offshore waters in May (see Table). The bird seen off Beaufort Inlet on 11 May (Ricky Davis) was rather early.

SOUTH POLAR SKUA: The four birds seen off Oregon Inlet on 25 May (Mike Tove and party) was an excellent single trip count. Three birds were of the dark phase, with one being intermediate or light in plumage.

LAUGHING GULL: The only inland spring sightings were two at Goldsboro on 4 May (Eric Dean) and one at Jordan Lake, Chatham County, N.C., on 20 April (Harry LeGrand).

COMMON BLACK-HEADED GULL: The bird that wintered at Morehead City was last noted on 16 April by John Fussell. During April the bird had attained full breeding plumage, which is seldom reported in the Carolinas.

BONAPARTE'S GULL: Todd Hass reported two late individuals at Cape Hatteras point on 26 May.

LESSER BLACK-BACKED GULL: This species seems to be arriving earlier in fall and departing later in spring than in previous years. One noted on 14 May at Onslow Beach, N.C. (John Fussell) was quite late.

GLAUCOUS GULL: Two immatures were seen about 40 miles off Morehead City on 16 March by John Fussell, Harry LeGrand, and John Wright. Fussell also saw a very late immature on 4 May at the Cedar Island, N.C., ferry terminal.

BLACK-LEGGED KITTIWAKE: This species is very rare in the Carolinas as late as May, yet two parties each reported several adults migrating past Cape Hatteras point during the latter half of May (see Table).

CASPIAN TERN: Locally rare were five birds at catfish ponds north of Pactolus, Pitt County, N.C., on 14 April (John Wright).

ROSEATE TERN: Hardly ever seen offshore, though supposedly a pelagic migrant enroute to its breeding grounds along the Northeast coast, was one seen off Beaufort Inlet on 11 May by Ricky Davis. He noted a "pale back, long white tail, all dark and long bill seen easily". Onshore one was observed from 10 to 12 May at Cape Hatteras point (Neal and Pat Moore et al.).

ARCTIC TERN: Perhaps the best flurry ever for spring sightings occurred off the North Carolina coast during May (see Table). A strong back-door cold front pushed south through the state on the afternoon of 18 May, and for the next several days strong northeasterly and easterly winds presumably pushed pelagic birds closer to shore than usual. The winds might also have dammed up the northbound migration of the terns, for notable numbers were found on 25 and 26 May. The three seen by Ricky Davis off Morehead City were somewhat early on 11 May; the birds were present around the headboat for approximately 25 minutes. Even more unusual were two birds seen on land at Cape Lookout, almost certainly forced ashore by the strong winds of the previous week. John Fussell found an adult in full breeding plumage there on 24 May; and he saw and photographed (at extremely close range) a very tired Arctic Tern, believed to be in second-summer plumage, at this cape on 25 May.

LEAST TERN: One seen by Lex Glover on 5 March was extremely early at Bear Island Wildlife Management Area, S.C. Also early were four birds seen by John Fussell and Edith Davis on 29 March at New River Inlet, N.C. John Wright noted two birds inland near Pactolus, N.C., on 4 May.

SOOTY TERN: In addition to one seen, as usual, at Cape Hatteras point (on 14 May by Marcia Lyons), two were observed from the Hatteras Inlet ferry on 17 May by John Fussell.

BROWN NODDY: Seldom seen except during and after hurricanes, one was most surprising on a pelagic trip on 25 May. The bird, not in full adult plumage (smallish white cap), was studied at close range with several Arctic Terns by Mike Tove, Harry LeGrand, Brian Patteson, and 20 other birders in the Gulf Stream east of Cape Hatteras.

BLACK-BILLED CUCKOO: This rare migrant was reported only three times during the spring: heard calling on 6 May near Roaring Gap, N.C. (Merrill Lynch); seen at Wadmalaw Island, S.C., on 28 April (Dana Beach); and seen at Charleston on 1 May (Tim Kalbach, Roger Clark).

BARN OWL: Paul Hart flushed one from a storage barn in Raven Rock SP, N.C., on 16 March. This species is only infrequently reported and is probably declining in the Carolinas, but more data are needed.

NORTHERN SAW-WHET OWL: During the first week of March, an immature owl flew into a truck driven by Guy Eubanks in extreme southeastern Durham County, N.C. The specimen was given to Scott Hartley, who identified the bird; it will be mounted at Eno River SP, N.C. Rick Knight heard one calling at Roan Mountain, N.C., on 3 and 7 April.

COMMON NIGHTHAWK: Rather early for the mountains was a bird first noted at Asheville, N.C., on 20 April by Gail Whitehurst.

CHUCK-WILL'S-WIDOW: Norma and Bill Siebenheller heard one calling in their yard at Pisgah Forest, Transylvania County, N.C., on 17 April. However, the bird was not heard on later dates and is presumed to have been a migrant. The species has yet to be reported as nesting (or even present during the summer) in the mountains of that state. Somewhat near the inner edge of the breeding range were two calling from 25 April to late May in the southeastern corner of Guilford County, N.C. (Roger McNeill).

OLIVE-SIDED FLYCATCHER: The only spring report was a very late migrant seen by Henry Link and Herb Hendrickson on 31 May at a park in Greensboro, N.C. [Roger McNeill submitted recognizable photographs to me; the photos have been sent to the N.C. State Museum of Natural Sciences for documentation.—HEL]

EASTERN WOOD-PEWEE: John Fussell saw a bird that was perhaps ten days early at Camp Lejeune, N.C., on 14 April.

WILLOW FLYCATCHER: Bill Hilton Jr. measured and banded single birds near York, S.C., on 13, 17, and 24 May. Presumably on territory were several singing birds in the vicinity of Yadkin Valley, Caldwell County, N.C., from 11 to 19 May (Merrill Lynch, John Wright, Derb Carter). Simon Thompson noted one singing at Tryon, N.C., on 22 May.

LEAST FLYCATCHER: Tim Kalbach and party noted a singing migrant at the Broad River Wildlife Management Area, Fairfield County, S.C., on 30 April.

EASTERN PHOEBE: Lex Glover found three pairs, including one on a nest, northeast of Lancaster, S.C., on 30 May, and he noted a pair plus another calling bird northeast of that town on the same day. He noted a calling phoebe on the following day northeast of Kershaw, S.C.

FISH CROW: Paul Hart saw a bird carrying a stick to a tall pine at a golf course south of Lillington, N.C., on 3 April. This is probable evidence of nesting at that locale. A pair at Moss Lake near Shelby, N.C., was farther west than normally reported; Simon Thompson saw the birds on 22 April.

COMMON RAVEN: Simon Thompson noted a pair of birds all spring at Chimney Rock Park, N.C.; breeding has apparently never been documented at that site.

BROWN CREEPER: Quite late in departing was one seen on 11 May by Nick Pantelidis Jr. at Greenville, N.C.

HOUSE WREN: Well over 6000 feet in elevation was a singing bird, presumably on territory, noted by Bob Lewis near the restaurant at Mount Mitchell, N.C., from 19 to 23 May. At Sumter, S.C., a male built three nests in a bluebird box at the home of Smitty Mallard from 14 to 24 April. Lex Glover and Evelyn Dabbs confirmed the sighting. However, as no mate was seen, these records can probably be considered as "dummy nests" and not proof of actual breeding.

SEDGE WREN: A first Polk County, N.C., record was one seen singing on 23 April at Tryon (Simon Thompson).

BROWN THRASHER: Bob Lewis noted one singing at the parking lot at Richland Balsam, along the Blue Ridge Parkway, N.C., in mid-May, for a high-elevation record (over 6000 feet).

SOLITARY VIREO: Near a poorly-defined southeastern limit of breeding, one was singing southeast of Lancaster, S.C., on 30 May (Lex Glover).

BLUE-WINGED WARBLER: A notable concentration of this uncommon migrant was five birds in one tree, as seen by Ricky Davis along the Tar River near Spring Hope, N.C., on 25 April.

TENNESSEE WARBLER: Simon Thompson noted a somewhat early migrant on 12 April at Tryon.

ORANGE-CROWNED WARBLER: Bill Hilton Jr. banded one near York, S.C., on 18 April.

MAGNOLIA WARBLER: John Wright and others saw a singing bird, probably but not conclusively on territory, at the Rough Ridge parking lot on the Blue Ridge Parkway near Grandfather Mountain, N.C., on 18 and 19 May.

BLACK-THROATED GREEN WARBLER: Peter Worthington noted a territorial pair as low as 1250 feet in the Old Indian Mountain area of northern Greenville County, S.C., in late May.

PINE WARBLER: Rare for Transylvania County, N.C., in summer was a male singing on territory in pines near Brevard from 23 May to 25 June (Betty McIlwain et al.); a female was also seen.

CERULEAN WARBLER: Perhaps a record state count was at least 20 singing birds reported by Russ Tyndall on 27 April and John Wright on the following day along the Blue Ridge Parkway, N.C., between Asheville and Craggy Gardens. A presumed migrant was singing on 16 April along the Cape Fear River near Fayetteville (Philip Crutchfield, Jarvis Hudson).

BLACK-AND-WHITE WARBLER: Lex Glover found a pair, plus a second singing male, northeast of Kershaw, S.C., on 31 May.

PROTHONOTARY WARBLER: Merrill Lynch and others noted a singing male at Lake Rhodhiss north of Drexel, N.C., on 18 and 19 May for a very rare foothills report.

WORM-EATING WARBLER: Rather early was a bird, apparently on territory, at Chicod Creek in eastern Pitt County, N.C., on 7 April (John Wright).

OVENBIRD: Lex Glover found the species widespread on 30 May to the northeast and southeast of Lancaster, S.C., finding a total of five singing birds.

WILSON'S WARBLER: Rare near the Fall Line was a male seen by Bobby Lutfy on 4 May near Buies Creek, N.C.

SCARLET TANAGER: Lex Glover and Chris Marsh saw a female carrying nesting material, with a male nearby, near Mayesville, S.C., on 30 April. The species appears to be extending its breeding range well into the coastal plain of the Carolinas.

PAINTED BUNTING: A female was seen by Lex Glover near Mayesville on 30 April.

DICKCISSEL: Single migrants were seen in eastern North Carolina at Bodie Island on 3 May (William Standaert) and in extreme eastern Halifax County on 4 May (Ricky Davis).

BACHMAN'S SPARROW: Harry LeGrand heard three singing birds along NC 242, about three miles south of Ammon, Bladen County, N.C., on 26 April.

LARK SPARROW: An immature was a good find at Whalebone Beach, Currituck County, N.C., on 4 April (Kerrie Kirkpatrick).

LARK BUNTING: Alan and Virginia Valpey provided thorough details on a male in breeding plumage seen on the deck of their oceanfront home at Southern Shores, Dare County, N.C., on 21 May. Among the details provided on a Rare Bird Sighting Report form were: "Most conspicuous feature (seen with naked eye) was bright white patches appearing to be about 1/2 inch square on medium and greater wing coverts. Faint white streaking seen along lower edge of wing. All other parts were dark grey or black producing dramatic contrast with pure white patches". There appear to be only two previous spring reports for the state, in addition to several fall records.

GRASSHOPPER SPARROW: The species continues to nest (presumably) at the New Hanover County, N.C., airport, where Greg Massey and Sam Cooper tallied at least six singing birds on 20 May.

HENSLOW'S SPARROW: Ricky Davis heard a singing bird, presumably on territory, along NC 211 on the Shallotte, N.C., Breeding Bird Survey route on 27 May. Sam Cooper considered a bird he heard singing near Aurora, N.C., on 16 April as a migrant, as he failed to hear it in May.

WHITE-CROWNED SPARROW: Rarely seen in the Charleston area was an adult at Ed Blitch's feeder at James Island on 11 March, as reported by Lex Glover. Glover also saw an adult near Mayesville on 25 April.

DARK-EYED JUNCO: Susan Mitchell reported that a pair bred successfully, with young seen, near her home near Brevard at a low elevation of 2600 feet.

BREWER'S BLACKBIRD: Tim Kalbach, Roger Clark, and others saw two males at Goat Island near Santee, S.C., on 10 March.

HOUSE FINCH: Two birds on territory were present in a yard along NC 211 north of Southport, N.C., on 27 May (Ricky Davis).

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CBC

Observations on Nesting Sharp-shinned Hawks in Greenville County, South Carolina

SUSAN MITCHELL[1] and IRVIN PITTS[2]

The Sharp-shinned Hawk (*Accipiter striatus*) is currently classified in South Carolina as a rare summer breeder or vagrant (Post and Gauthreaux 1989). Breeding was first documented in the state on 14 May 1937 in Beaufort County by DeCamps (1944). Since 1937, spring and summer sightings of this bird have persisted throughout the state, but few other breeding reports have been documented. Pitts saw individual birds at Caesars Head State Park, Greenville County, South Carolina on 28 June 1987 and 12 June 1988.

In 1991 an active Sharp-shinned Hawk nest was reported in Williamsburg County, S. C. on 9 May (S. Rogers, pers. comm.). Fledged young out of the nest were later reported on 11 July near Kershaw, Lancaster County (L. Glover, pers. comm.). On 27 April 1991, Pitts heard and saw a calling male Sharp-shinned Hawk at Caesars Head State Park and he saw adults building a nest at the same location on 28 April. This report documents observations of that nest by Mitchell and Pitts during the 1991 breeding season.

The nest was easily observed from the ground. Using 10 x 40 binoculars and a spotting telescope, a total of 71 hours were spent observing the nest, with nest building observed for 12 hours; incubation for 37 hours; and brooding 25 hours.

NEST SITE

The nest site was located at Caesars Head State Park, Greenville County, S. C. at an elevation of about 924 m. This was about 2.9 km W of the park headquarters and 640 m from the South Carolina/North Carolina border.

The nest was placed about 14 m high on a three prong fork of a large White Pine (*Pinus strobus*). It was situated against the main trunk and substantially built of twigs and small branches. The nest tree was located about 30 m from a small grove of large White Pines and 21 m from a dirt road. It was also located 36 m from a small clearing of the forest that was 12 m by 18 m. The nest was large and bulky. Materials used for the inner lining of the nest are not known.

Bent (1937) stated that in southeastern Massachusetts, the standard nesting site is usually located in a dense grove of medium-sized White Pines (17 of 18 records in White Pine stands). W.J. Brown (cited in Bent 1937) stated that many Montreal nests are found at the edge of any clearing or opening in the middle of the woods. The South Carolina nest described here was found in a similar situation.

The nesting area was heavily wooded with a mixed stand of hardwoods and pines. The dominant canopy trees included White Pine, Tulip Tree (*Liriodendron tulipifera*), Red Maple (*Acer rubrum*), Black Locust (*Robinia pseudo-acacia*), Pitch Pine (*Pinus rigida*), Virginia Pine (*P. virginiana*), Scarlet Oak (*Quercus coccinea*), Rock Chestnut Oak (*Q. prinus*), White Oak (*Q. alba*) and Black Gum (*Nyssa sylvatica*).

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The understory was fairly dense and consisted mostly of Huckleberry (*Gaylussacia ursina*), Mountain Laurel (*Kalmia latifolia*), White Pine, Holly (*Ilex opaca*), blueberry (*Vaccinium* sp.), Red Maple, Sourwood (*Oxydendrum arboreum*), Flowering Dogwood (*Cornus florida*), Umbrella magnolia (*Magnolia fraseri*), Sassafras (*Sassafras albidum*), hickory (*Carya* sp.), and Chinquapin (*Castanea pumila*).

COURTSHIP AND NEST BUILDING

The adult male, distinguished from the female by his smaller size, was present in the nesting area during the nest building period and was quite vocal. His most frequent call was a shrill, falcon-like "kek-kek-kek-kek". This call was heard whenever the nesting area was approached. This, or a similar call, was also given by the male when the pair interacted during nest building activities. The female also called, but less frequently. Her call was similar to the male's but was less shrill and more suppressed. Pitts heard one bird give a series of "squealing" calls on 5 May.

The male called most frequently from the understory of the nearby pine grove at a place that later became the "feeding area". When the male was approached by a human observer, he normally flew a short distance away and perched facing the intruder while shaking his tail. Both Mitchell and Pitts saw this tail-shaking behavior.

Copulation was observed by Heyward Douglass and Pitts about 40 m from the nest tree on the morning of 4 May. The female flew directly to the male, and he quickly mounted her. Mating lasted for about 10 sec and was accompanied by much wing flapping and calling by both birds. The female immediately flew off, and the male remained perched facing us and shaking his tail. Palmer (1988) stated that "tail flagging" behavior of the male is sometimes associated with "territorial or pair-bonding activities".

Nest construction was seen by Pitts on 28 April and 4 May. The female did most of the work, but both adults were seen making alternate trips to the nest on 4 May. Both birds were present during nest building. Nest material was gathered near the nest tree. The female usually gathered the nest material in the vicinity of the nearby male, who called frequently. The female called occasionally. Each trip to the nest was brief, usually lasting from 10–15 sec. and never longer than 30 sec.

Pitts saw the female gathering nest material on 28 April. She moved through the understory, dropping down to the ground to snatch small branches with her talons, and then flew directly to the nest. On each approach she flew in low, banked sharply at the main tree trunk and swooped up to the nest. The adults spent active periods of nest building, followed by longer intervals away from the nest. On 4 May, Pitts saw the adults make 8 visits within 5 min. Nest building was observed from mid-morning to early afternoon.

Blue Jays (*Cyanocitta cristata*) were active and vocal in the area during the nest building period. During a pause in nest construction on 4 May, Pitts saw 4 Blue Jays fly into the nest tree. One of the hawks, thought to be the female, flew to the nest tree, scattered the Blue Jays and pursued one. The bird's manner of approach was similar to that used when bringing nesting material.

INCUBATION PERIOD

Mitchell saw an adult, presumably the female, perched on the rim of the nest on 9 May. The bird did not appear to be incubating. On 13 May she saw the female in the nest, apparently incubating eggs. Palmer (1988) stated that eggs are usually laid on alternate days, and that incubation does not begin until after the third egg is laid or the clutch is complete. Mitchell's observations indicate that incubation probably began sometime between 10 and 13 May. The total number of eggs laid was not determined.

Shortly after incubation began, the "kek-kek-kek" call of the male, which was frequently given during the nest building period, was no longer heard. On 6 June, Mitchell played a tape recording of a Sharp-shinned Hawk call but got no response. Bent (1937) stated that incubation is shared by both sexes and Palmer (1988) stated that the male incubates occasionally. However, our observations indicated that the female spent the most time on the nest and that the male generally stayed away from the nesting area. There was no evidence that the male spent any time on the nest.

During the incubation period, Mitchell saw the male at the nest tree on three occasions. On 13 May the male flew in apparently to drive away an American Crow (*Corvus brachyrhynchos*) that had entered the nest tree. The crow left, and the male flew off shortly thereafter. He gave the "kek-kek-kek" call that was probably an alarm response to the crow. During this time the female remained on the nest. On two other occasions (22 and 30 May) the male flew back to the nest with the female from the feeding area. On both occasions the male stayed only briefly; after she settled in, he flew off.

Once incubation began, the male spent most of his time away from the nest. When he did arrive, he usually brought food and gave a soft "ki-ki-ki" call. This call, which we termed as the "feeding call", was less shrill and more subdued than the "kek-kek-kek" call given by the male earlier (during the nest building period). The male usually flew to a small area of the forest near the nest known as the "feeding area". (The feeding area will be described in more detail later.)

When the male arrived and called, the female would slip off the nest and fly to the feeding area. Occasionally she would leave the nest immediately, but at other times it took more coaxing on the male's part. This reluctance to leave the nest might have been attributed to the female's nervousness about our presence. When she joined the male, both birds actively moved through the understory of the "feeding area", jumping about from branch to branch. On 5 June, Mitchell saw the female chase the male in the "feeding area" while he carried food.

Mitchell and Pitts both noted that the male usually ate a portion of the food before transferring the remainder to the female. After she ate, she normally remained in the "feeding area" for a short time, preening and tail wagging, before flying back to the nest. The male usually stayed nearby until she had finished eating and departed. On the average the female usually stayed away from the nest for about 5 to 10 min.

The incubating female frequently seemed "restless" in the nest, shifting positions and preening often. On most occasions her long tail was visible over the rim. She could not be seen at other times. On 30 May Mitchell saw the female fly from the nest with a large feather in her bill. Other cast-off hawk feathers were also found in the nesting and feeding area. Bent (1937) and Palmer (1888) stated that the female molts during the incubation period. The female sometimes seemed nervous due to our presence but never left the nest when we approached.

Aggressive behavior was noted on 8 June. Pitts was in the feeding area when the male arrived with food. He called 8 times, but the female could not be seen. Pitts watched the male for about 10 min as he plucked and fed on a small bird. The male occasionally glanced at Pitts "but did not seem too concerned". The female appeared suddenly and swooped at Pitts. She then flew up to a nearby branch, faced Pitts and called an agitated "kek-kek-kek", and then swooped again. Some Blue Jays called from near the nest tree, and she immediately flew in that direction. The male left in the opposite direction, still carrying partially eaten food.

On 10 June the female also swooped towards Mitchell on her way to the feeding area. She made one pass and veered away towards the calling male. This was the only other incident of aggressive behavior noted. However, the "kek-kek-kek" alarm call was given by both birds on several occasions when they were disturbed in the "feeding area".

YOUNG REARING AND DEVELOPMENT

Bent (1937) stated that "when first hatched, the nestling is scantily covered with short white down". Fluffs of white down were first seen on the nest rim by Pitts on 9 June. Bent (1937) stated that the incubation period lasts for about three weeks; "perhaps 21 to 24 days". Palmer (1988) estimated that the incubation period lasts for about 30 to 32 days. Assuming that Palmer is correct and that incubation began sometime between 10 and 13 May, 9 June would be close to the time of hatching.

After hatching the male continued to catch food and bring it to the feeding area with increasing regularity. He announced his arrival with the "ki-ki-ki" feeding call, drawing the female off the nest. Mitchell first saw young actually being fed in the nest on 18 June. At other times an adult dropped food off in the nest and immediately returned to the feeding area with actual feeding not observed. Both adults were vocal in the feeding area.

The male made regular visits to the nest following hatching but it was never clearly determined whether he actually fed the young. The male accompanied the female back to the nest from the feeding area on several occasions. On 13 June Pitts saw the male fly over the nest tree twice, giving a squeal-like "skeeee skeeee skeeee" call. He flew to the nest briefly that same morning while the female was brooding but did not bring food. Mitchell also heard a "squealing" call from the feeding area on 5 July.

The female continued to brood throughout the month of June but became increasingly restless on the nest. She preened constantly, frequently shifted positions, and perched on the rim more often. On 13 June Mitchell saw the female re-arranging twigs in the nest. She frequently seemed busy and sometimes nervous about our presence.

The female was last seen brooding by Mitchell on 28 June. Mitchell found the nest unattended on 1 July and on consecutive days. Snyder and Wiley (cited in Palmer 1988 on two Sharp-shinned Hawk nests in Arizona) stated that "to mid-nestling stage, nearly all food eaten by the pair and offspring was captured by the male, then the female begins to hunt extensively and continues throughout the breeding period".

The end of the brooding period also marked the cessation of the male's feeding call, except for calls heard on 2 and 11 July. The feeding area was used considerably less often following the brooding period. Very little fresh whitewash was found in the feeding area after 1 July.

Mitchell saw 3 of the 4 young aggressively take food from the adult on 1 July. On that day the young were alert, active and mobile, perching precariously on the nest rim and flapping their wings. They still had a considerable amount of down on their bodies.

On 5 July the young were increasingly alert, climbing over each other, flapping their wings and actively chasing flies buzzing around the nest. On 5 July Mitchell also noticed a size disparity and differences in the degree of feathering between nestlings. The most advanced nestling had dark wing tips, a longer tail and dark feathers developing between the bill and eyes.

Palmer (1988) stated that disparity in size between sexes is apparent from very early in nest life, and that the male becomes feathered at an earlier age than the female, although the female tends to be larger. This size disparity was apparent to Mitchell and Pitts.

Mitchell saw the nestlings pick and chew on twigs of the nest on several occasions. As they grew and became more active, the nest's condition became worse. On 7 July the young were much more coordinated, hopping along the nest rim and tearing at food brought in by the adult. Mitchell noted that the down feathers were quickly being replaced by the juvenal plumage. The primaries and tail had sprouted, and the breast was streaked with dark feathers. The young actively preened that day, removing much of the white down still present.

Also on 7 July Mitchell first saw one of the nestlings venture from the nest. This nestling twice jumped on the main branch supporting the nest, but quickly returned to the nest each time. On that same date Mitchell also heard the young give a "peeping" call when an adult brought food to the nest.

By 11 July the young were capable of feeding themselves in the nest, and much of the down had been replaced by juvenal plumage. The remaining down was of a buffy, tan color, and the nestlings continued to preen actively. On 14 July Mitchell observed that the nest was loosely arranged, and, in some places, falling apart. The young actively jumped in and out of the nest. The young called more vigorously on that day when an adult brought in food.

Palmer (1988) cited various sources as to the time nestlings became "branchers" and ventured from the nest: in Oregon, 21 to 24 days (R. Reynolds and Wight in Palmer 1988), and in Utah, 24 days for males and 27 days for females (J. Platt in Palmer). Mitchell found the nest empty on 17 July. On 18 July Mitchell saw and heard one fledgling call from the nest tree, but none were seen in the nest. Mitchell determined that four young successfully fledged from the nest.

The feeding area was used by the male as a place to deliver food to the female during the nesting period. It was located on the outer fringe of the White Pine grove, 75 m from the nest tree and 6 m from a dirt road. The feeding area contained a thick stand of second growth hardwoods including Red Maple, Tulip Tree, Rock Chestnut Oak and Black Locust. A large White Pine within the site was frequently used by the adults. The understory was fairly open but with a dense growth of Huckleberry in some places and scattered patches of Mountain Laurel.

The feeding area showed extensive use during the incubation and brooding period. A considerable amount of whitewash was present and feathers, bones, wing parts, feet from various songbirds and three pellets were collected from this area. Our observations indicate that most of the whitewash and pellets were from the female. After she quit brooding, fresh whitewash was not found.

Although the male generally spent most of his time away from the area, he occasionally hunted in the vicinity of the nest. On 7 June Pitts found the remains of a freshly killed Black-and-white Warbler (*Mniotilta varia*) in the dirt road near the feeding area. On 8 June Pitts saw the male dive into a flock of juvenile Eastern Phoebes (*Sayornis phoebe*) near the same location. Usually however, the male brought food into the feeding area already partially plucked.

The male brought food in at various times, but during the incubation period, he normally arrived every 2 to 4 hours. The time of his visits also varied following hatching but generally increased. He was observed arriving at a 55 min interval on 18 June and at a 21 min interval on 24 June. Following the brooding period, food was ordinarily brought in at intervals of 2 hrs or less.

Numerous songbirds were active in the nesting vicinity during the breeding period. Birds present in the area included Hairy Woodpecker (*Picoides villosus*), Eastern Phoebe, Blue Jay, American Crow, Carolina Chickadee (*Parus carolinensis*), Tufted Titmouse (*Parus bicolor*), Wood Thrush (*Hylocichla mustelina*), Solitary Vireo (*Vireo solitarius*), Red-eyed Vireo (*Vireo olivaceus*), Black-throated Blue Warbler (*Dendroica caerulescens*), Black-and-white Warbler, Worm-eating Warbler (*Helmitheros vermivorus*), Ovenbird (*Seiurus aurocapillus*), Hooded Warbler (*Wilsonia citrina*), Scarlet Tanager (*Piranga olivacea*), Northern Cardinal (*Cardinalis cardinalis*), and Rufous-sided Towhee (*Pipilo erythrophthalmus*). While Mitchell and Pitts were observing the nest on 13 June, songbird activity notably ceased when the male arrived at the feeding area.

Feathers and body parts of various fledged young and nestlings were recovered from the feeding area. The remains of nestlings were also found in two pellets. Palmer (1988) stated that the period of young rearing coincides with an abundance of nestling small birds and small mammals that can be easily captured.

A pellet collected in the feeding area by Mitchell on 18 June contained numerous remains of small arthropods. It was not determined whether the remains were from the digestive tract of consumed prey or were eaten by the hawk itself. While brooding, the female spent much time preening and poking around and possibly could have eaten some insects. Insects were seen crawling on and buzzing around the nest during and after the brooding period.

All documented food remains at this nest consisted of small birds. No mammal, reptile or amphibian remains were found in the feeding area. The remains from the following species of birds were recovered from the feeding area and positively identified: Yellow-bellied Sapsucker (*Sphyrapicus varius*) (old remains), Downy Woodpecker (*Picoides pubescens*), Eastern Phoebe, Tufted Titmouse, Carolina Wren (*Thryothorus ludovicianus*), Wood Thrush, Black-throated Blue Warbler, Black-and-white Warbler, Hooded Warbler, Scarlet Tanager, and Rufous-sided Towhee.

Four young successfully fledged from the nest. Palmer (1988) summarized Reynolds and Wight's study (1976) on the breeding success of this species. Their study indicated that 70–100% of hatched young survive to flight. Our observations indicate that the adults were fully capable of caring for their young and highly successful at capturing food. The adults also became accustomed to our presence and we feel our observations did not adversely influence their nesting activities.

Acknowledgements. We thank Robin Carter and John Cely for reviewing this manuscript.

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REPORT OF THE NORTH CAROLINA BIRD RECORDS COMMITTEE 1991

This report enumerates the decisions of the Carolina Bird Club's North Carolina Bird Records Committee since the publication of the 1990 report (Chat 54:53-58). The 1990 report of the Committee was an evaluation of all species reported in the state that were listed as either Provisional I or Provisional II by the previous Committee. An evaluation of several species on the Official List that have not been documented by either a specimen or photograph was also made in the 1990 report. This 1991 Committee report, however, discusses the decisions of individual sightings, as opposed to species.

The Committee has made a policy of not listing specific dates, locations, or names of observers for previously unpublished reports that have not been accepted. Publishing locations and dates, even for unaccepted records, might inadvertently place them in the literature. The Committee will also not list observers for any unaccepted records, whether unpublished or previously published. However, because the locations and dates of previously published records are mentioned in the literature, these data may be repeated in the Committee report. In all cases of previously published records, the literature citations are printed so that readers can refer to the descriptions in those reports.

ACCEPTED AS VALID. The reported identification is judged to be accurate and the bird is judged to be of wild origin.

SOFT-PLUMAGED PETREL (*Pterodroma mollis*). One was seen by approximately 25 birders on a pelagic trip off Oregon Inlet on 25 May 1991. Details and sketches were provided independently by Michael Tove and by Todd Hass; the bird was not photographed. The Committee has previously (Chat 54:53) accepted one seen by David Lee off Oregon Inlet on 3 June 1981 but had given an Unresolved status to the species because of the taxonomic problems of the Soft-plumaged Petrel complex, as three species might be involved in the complex. Several national and international committees have now accepted the split of the complex into Cape Verde Petrel (*P. feae*), Soft-plumaged Petrel (*P. mollis*), and Madiera Petrel (*P. madiera*); however, the American Ornithologists' Union has not made decisions on the taxonomy because no specimens or photographs of the species complex are yet available for the North American region (Richard Banks, pers. comm.). The principal observers of the May 1991 record are describing the bird as apparently a member of the *feae* taxon in a paper submitted to a national journal. However, the N.C. Bird Records Committee has reviewed (and accepted) the 1991 record as the species complex only, and it may well review the record again at the split taxon (i.e., *feae*) level. In summary, the Committee has accepted the 1991 record, and the Lee record, to the species complex. The Soft-plumaged Petrel complex is thereby considered Provisional in North Carolina, with two accepted sight records; no specimens or photographs are available.

HERALD PETREL (*Pterodroma arminjoniana*). A dark-phase individual was seen and photographed on a pelagic trip off Oregon Inlet on 24 August 1991. Michael Tove provided details to the Committee, and photographs taken by Tove and by Brian Patteson were also reviewed and considered acceptable to document the species. Herald Petrel is already on the Official List, based on a specimen taken by David Lee on 20 August 1978 (Am. Birds 33:138-139). A sight record on 21 August 1980 (Am. Birds 38:159) has not yet been reviewed by the Committee. A report of one to two birds, including photograph of an intermediate-phase bird, from off Hatteras on 22 May 1991 (Am. Birds 45:433, 511) has also not been reviewed, pending a written description to accompany the photograph.

GARGANEY (*Anas querquedula*). A male seen by numerous observers at Buxton in March 1957 (Chat 21:68-70; 21:88) is considered to be correctly identified and to be of wild origin, as the species is common in Europe and is highly migratory. This is the only record for the state and is placed on the Provisional List.

BLACK-SHOULDERED KITE (*Elanus caeruleus*). One seen on 3 January 1957 near Wilmington by Edna Appleberry and Mrs. Cyril K. Bryan (Chat 21:70-71) is considered valid. As there is a photo available for a bird seen at Fort Fisher in 1989 (see Chat 54:55), the species is on the Official List. These are the only two accepted records for the state.

SPRAGUE'S PIPIT (*Anthus spragueii*). One seen by Rick Knight, on Round Bald at Roan Mountain on 27 October 1991, is accepted, based on details provided on a Rare Bird Sighting Report form. The species is currently listed as Provisional, but further review of other reports of the species will be made.

LARK BUNTING (*Calamospiza melanocorys*). A male in breeding plumage was seen by Allen and Virginia Valpey on 21 May 1991 at Southern Shores in coastal Dare County. Each observer provided a description of the bird on a Rare Bird Sighting Report form, and the record is accepted by the Committee. The species, already on the Official List, has now been seen in the state on approximately six occasions.

HARRIS' SPARROW (*Zonotrichia querula*). One seen by Norm Budnitz in northern Durham County on 21 April 1991 was later seen by all seven Committee members over the next two weeks. There are four or five previous records for the state.

SHINY COWBIRD (*Molothrus bonariensis*). A specimen, a male, was found dead by Bob Holmes in his yard in New Bern on 29 October 1990, after having been seen there from 9 to 12 October 1990 (Am. Birds 45:264). The Committee has studied the specimen and accepts the record based on the specimen, though no written description has been reviewed. The specimen has been corroborated as a Shiny Cowbird by the Smithsonian Institution in Washington, D.C., where the specimen (USNM 597185) is now deposited. This is the second accepted record for North Carolina, and the specimen places the species on the Official List. The species had been placed on the Provisional List based on a sighting of a male near Aurora on 16 November 1989 (Chat 54:82-85); however, there was dissention among the Committee about the identification of the bird from photos taken by the observer.

UNACCEPTED ORIGIN. The identification is judged to be accurate but the bird is judged to be a likely escapee or a member of an unestablished, introduced population, or to have received significant human assistance such that the bird's survival without that assistance would have been very unlikely.

BLACK-BILLED MAGPIE (*Pica pica*). One seen near Chapel Hill on 23 March 1960 (Chat 24:25-26) is judged to be a likely escapee. Although the species does occasionally undergo migratory movements, these movements rarely bring the birds east of the Great Plains. The species is also known to occur in captivity.

UNACCEPTED SIGHTING. The bird is judged to be a species other than that reported, or the bird is insufficiently documented for identification to the species reported.

ARCTIC/PACIFIC LOON (*Gavia arctica/pacifica*). One was reported at Ocracoke in 1974 (Am. Birds 28:626); this sighting was made before the split of the former Arctic Loon into two species -- Arctic Loon (*G. arctica*) and Pacific Loon (*G. pacifica*). The Committee has not accepted the sighting as this species complex, despite its study at close range for an hour, based on unpublished details. These details do not mention the very dark back half of the neck of the species complex, particularly the very distinct black sides of the neck that contrast sharply with the white on the front of the neck. The bird in question may well have been a Red-throated Loon or a Common Loon. There is only one accepted record of the complex, a Pacific Loon in partial breeding plumage at Cape Hatteras on 15 May 1987 (Chat 53:8).

RUFOUS-NECKED STINT (*Calidris ruficollis*). Two birds were reported from the Outer Banks of Dare County in the summer of 1990. The report was not accepted because of several factors: poor viewing conditions (distance and sun orientation), difficulty of identification of the species, and a highly unlikely series of rarities seen in conjunction with this report that were not confirmed by other observers. The Committee believes that the birds may have been misidentified Sanderlings.

RUFOUS-NECKED STINT. A second report, from coastal Brunswick County in the summer of 1990, was made only several days after the preceding report. It also was not accepted. One of the observers told the Committee chairman that the bird(s) in question were believed to be Sanderlings, and the written details also strongly point to misidentified Sanderlings in partial breeding plumage. Thus, there are no accepted records of Rufous-necked Stint for North Carolina.

WHITE-WINGED TERN (*Chlidonias leucopterus*). One reported from coastal Dare County in the summer of 1990, at the same time that the two Rufous-necked Stints were reported, was not accepted. The great distance of the bird from the observer, the difficulty of identification of the species when not in breeding plumage, and the lack of corroboration of the numerous rare species reported at the same time led to the failure of the report to be accepted. There are no accepted records for the species for North Carolina.

VARIED THRUSH (*Ixoreus naevius*). One was reported from a yard in coastal Dare County in early fall of 1990. The written details lean either to Rufous-sided Towhee or Northern (Baltimore) Oriole, probably the latter because it migrates through that area in early fall; the details do not suggest a Varied Thrush. The Varied Thrush typically appears in the Eastern states in winter and is generally found at feeders in the mountains or upper piedmont. Though Virginia has seven accepted state records and Georgia has two such records, as of 1991, neither North Carolina nor South Carolina have any accepted records.

KIRTLAND'S WARBLER (*Dendroica kirtlandii*). One reported from the Outer Banks during the fall of 1991 is not accepted. This report was sent to two outside reviewers with extensive experience with the species; one thought the bird was correctly identified, though with some reservations, whereas the other suggested that he would not accept the sighting. The Committee members had these outside reviews in hand when they voted on the report. Three members believed the bird was misidentified, three felt the report was inadequately documented, and one accepted the sighting as valid. The report is thus considered as an Unaccepted Sighting.

Three sightings of Kirtland's Warbler by a single observer in the Rocky Mount area from 1936 to 1941 (Chat 1:5, 6:25-26) have not been accepted. Published details were rather sparse, and the likelihood of a single observer seeing three individuals of this exceedingly rare bird in a five-year period, yet with no previous records nor any other published records in the state until 1982, is extremely unlikely.

The species is presently placed on the Provisional List, with one accepted sighting. Because of the extreme rarity of the species, with perhaps only 400 to 500 individuals in existence at the present time, the Committee wishes to be extremely cautious about accepting reports of the species.

UNRESOLVED. Further consideration by the Committee is needed.

WESTERN GREBE (*Aechmophorus occidentalis*). Two reports (Chat 26:17-18)—at Pea Island and at Raleigh—have been reviewed, but further discussion is needed. Other reports for the species will be reviewed. The species is placed on the Provisional List, at least for the time being.

Committee members:
Harry E. LeGrand Jr., Chairman
Richard J. Davis
John O. Fussell III
J. Merrill Lynch
Simon R.B. Thompson
Michael H. Tove
John S. Wright

REQUEST FOR REPRINTS ON OWLS

Authors of articles or publications dealing with owls and wishing them to be listed in the second edition of a Working Bibliography of Owls of the World are asked to send reprints to:

Richard J. Clark
The Owl Bibliography
c/o Department of Biology
York College of Pennsylvania
York, PA 17405-7199

REPORT OF THE SOUTH CAROLINA BIRD RECORDS COMMITTEE

1991

The South Carolina Records Committee was reorganized by vote of the Executive Board of the Carolina Bird Club on October 26, 1991. The Committee consists of the following members: Robin Carter, Chariman, John Cely, Steve Compton, Dennis Forsythe, Sidney Gauthreaux, Lex Glover, Chris Marsh, William Post, and Peter Worthington, Secretary. Correspondence and sighting reports should be forwarded directly to:

Peter L. Worthington
716 North Almond Drive
Simpsonville, SC 29681-3452

The Committee prefers that sighting reports be submitted on the "Rare Bird Sighting Report" adopted in common with North Carolina, although any other form that has complete information may be accepted. Copies of this form may be obtained directly from the secretary, and were sent to all Club members in a recent mailing of the Newsletter. The secretary will inform all reporters of the committee dispositions as soon as they are available.

By year end the following had been accomplished:

1. A definitive list of 367 species and a breeding list of 173 species had been assembled, and are out for a final vote of the committee. (Note: as of 5 Feb. 1992, the definitive list is approved with eight affirmative votes, and the breeding list has but one species in question—Carolina Parakeet—with six affirmative and two negative votes).

2. Five species of Post & Gauthreaux' definitive list have been set aside for further review.

3. Seven sighting reports for the Fall of '91 are being circulated for review.

In early 1992 the Committee expects to review the birds in the Provisional I & II categories, as well as those in (2) above. We also expect to establish ground rules on report acceptance with less than unanimity, upgrading to the definitive list from provisional status; and a mechanism for adding species to the breeding list.

Respectfully submitted,
Robin Carter, Chairman
Peter Worthington, Secretary

CBC Rare Bird Alert
(704) 332-BIRD

General Field Notes

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NOTICE

Publication of any unusual sightings of birds in the Field Notes or Briefs for the Files does not imply that these reports have been accepted into the official Checklist of Birds records for either North or South Carolina. Decisions regarding the official Checklists are made by the respective State Records Committees and will be reported upon periodically in THE CHAT.

Pine Siskins build nest in Transylvania County, N.C.

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The occurrence of Pine Siskins (*Carduelis pinus*) in the mountains of North Carolina during their presumed breeding season was first recorded by Brewster (1886), who found them singing in the Black Mountains on 2 June 1885. Numerous May, June and July sightings were reported from many sites over a period of more than a century without any documentation of breeding within the state. Following the massive invasion of Pine Siskins in the winter of 1981-82, Watson and Watson (1987) reported possible extra-limital breeding at Southern Pines, N.C., and Williams (1987) described a preflight Pine Siskin found at her home in Asheville, N.C. Siebenheller and Siebenheller (1987) expressed the opinion that the practically unlimited food supply at well-maintained feeding stations encourages Pine Siskins to nest at relatively low elevations in the mountains. They described behavior suggesting courtship and local breeding in Transylvania County, N.C. in April, May and June of 1986.

On 2 June 1986, McNair (1988) "discovered a female Pine Siskin building a nest on a horizontal limb of a 15 m high Fraser fir (*Abies fraseri*) on the northeast slope of Mt. Mitchell 75 m below the summit." A male perched nearby and sang occasionally, but he did not defend the territory around the nest. The breeding pair associated with 8 to 14 other Pine Siskins that were active in the vicinity of the summit. The nest appeared to be abandoned when

McNair returned to the site on 8 June. During his June visits McNair also observed singing and chasing by males, display flights, and courtship feeding.

On 12 April 1991 the authors and Susan Mitchell, of Pisgah Forest, watched Pine Siskins constructing a nest at Gwynn Valley Camp (elevation 2,650 ft.) on Island Ford Road in the southeast portion of Transylvania County. At 1100 hours, we saw two birds high in the top of a hemlock (*Tsuga* sp.). When one of them had gathered a beakful of nesting material, they both flew off swiftly to an adjacent hemlock. Mitchell was able to follow their flight and saw one of them alight next to a nest and begin to weave in the new material. The nearly-completed nest, woven of rootlets and grasses (as best we could determine) was well out on a down-sloping limb, about 25-30 ft. high.

The two birds flew to a leafless deciduous tree and landed near a fairly large, somewhat battered nest made by another species the previous year. They then removed several bits of straw from this old nest and flew back to the nest they were building in the hemlock. One of them worked this new material into the center of the new nest. After a few more minutes the birds flew across an open field and out of sight. We obtained permission from the owners of the camp to revisit the area freely over the next few weeks as nesting progressed.

On the afternoon of 14 April we saw the female siskin land at the nest with a beakful of fine material. Our Bushnell 20-power telescope was trained on the nest and afforded details not seen on the first visit. The female siskin leaned down into the nest with this tuft of grass until only her tail was visible over the rim. She seemed to be working the material into the inner portion of the nest. She then flew off and, because of rain, our observations ceased for that day.

On 16 April we arrived at 1000 hours to find the female siskin gathering dandelion fluff in the lawn adjacent to the nest tree. She flew up towards the nest at our arrival, but because of our angle at the time we could not tell if she actually went to the nest or not.. Within a minute she was back on the lawn and was then joined by the male. They remained only a minute more on the lawn, then flew off into some deciduous trees 100 yards away, where they disappeared.

On 19 April we set up the telescope on the nest at 1330 hours and were elated to find that one siskin appeared to be incubating eggs. We saw a tail visible above the nest rim. There was a slight movement, then the bird was still again, and remained so for 20 minutes. At 1350 hours this bird suddenly and quietly left the nest and flew to an adjacent hemlock, then disappeared into the foliage. At 1400 hours the bird returned, again very directly and silently. We assume that his bird was the female, as the female does all the incubating in siskin pairs (Palmer, 1968). However, we were not able to verify this visually. We observed no nest-building this day. The returning bird settled right down into the nest upon arrival, and we could see it moving slightly to adjust its position. Then it was completely still again, and remained so for at least the next 15 minutes. It then began to rain and we left.

On 21 April we were not able to tell whether the nest was occupied. We watched it closely for 2 hours and did not see any activity. There was no evidence of a head or a tail sticking up above the rim, as there had been two days previously.

On 23 April, Mitchell visited the nest in the morning and saw the male at the edge of the nest, with material in his beak. He appeared to be removing material from the nest rather than adding it. He then flew off. Mitchell saw no sign of the female. In the afternoon of the same day we set our telescope on the nest and promptly saw the male appear silently at the nest and begin to pick small bits of lichen from the outside. He did this methodically for a minute or two until he had a beakful. He then moved about three feet to the right and disappeared into the interior of the tree. We did not see him leave the tree. He never looked into the nest itself while he was there. We saw no sign of the female although we continued to watch for an hour. In subsequent days we visited the nest site repeatedly, as did Mitchell, but we never again saw either Pine Siskin, and we were forced to conclude that they had abandoned the nesting attempt.

We believe this observation is significant because the pair did complete the nest and apparently began to incubate a clutch of eggs, as indicated by the behavior of the female on 19 April. Thus, this seems to be the first documented nest-with-eggs for the Pine Siskin in North Carolina. In addition, the fact that the pair built a nest at the relatively low elevation of 2,650 ft. confirms our suspicions, stated in an earlier *Chat* article (Siebenheller and Siebenheller, 1987) that this species should be looked for at all elevations during the spring breeding season, not just at the higher "northern" altitudes, as is usually indicated.

One thing about the 1991 attempted nesting surprised us greatly. During the winter of 1990-91, Pine Siskins were scarce to absent in this area. In all our previous experience, (Siebenheller and Siebenheller, 1982, 1987) every instance of possible, probable or confirmed nesting occurred after a winter in which the species was very plentiful in the area.

In 1978 the "invasion" into southern New York did not occur until March, but the birds were abundant after that into the spring. In 1991, however, we personally saw no Pine Siskins at all during the winter, and heard only scattered reports of a few at feeders in the county. So this pair, nest building in April, took us completely by surprise.

The authors thank Eloise Potter and Mark Simpson for their assistance in the preparation of this article.

Northern Raven (*Corvus corax*) Nesting in Forsyth County, N.C.

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The Northern Raven (Corvus corax) is an uncommon permanent resident in the higher elevations of the Appalachian Mountains, usually above 3000 feet (Potter et al. 1980). In March 1974, a nesting pair was discovered on the east wall of Big Pinnacle at Pilot Mountain State Park in Surry County at an elevation of 2400 feet (Teulings 1974). The Pilot Mountain nesting constituted the easternmost breeding record of the Northern Raven in North Carolina.

In 1978, a Northern Raven was observed in Forsyth County on the Spring Bird Count (Fussell 1979). Subsequent sightings occurred during the following years, usually in the northern sector of the county. These sporadic sightings were attributed to vagrant birds flying from the Pilot Mountain site, which is only 13 air miles to the northwest.

An extensive search was undertaken in the spring of 1991, after another raven sighting was made during the 1990 Forsyth County Christmas Bird Count. Personnel of the Vulcan Materials Company Quarry, located near the area of sightings, indicated the ravens had nested on the rock face of the quarry walls.

On 22 February 1991 we visited the quarry area, observed a distant raven perched on a bare tree, and later located an apparent nest near the top rim of a northeastern sheer granite wall. Splashes of "whitewash" were noticeably visible on the rock ledge and also on a jutting rock ledge several feet lower. Later, we determined this particular site was a favorite perching area rather than a nesting site.

On 1 March 1991, we observed two ravens flying in the immediate quarry area. From the opposite (west) wall, at a distance of 1000 feet, we observed a nest near the top rim of an eastern sheer granite wall. The nest was located on a rock ledge out-cropping 250 feet above the quarry floor and sheltered by an overhanging rock ledge. Using a 50x Questar telescope, we spotted one adult on the nest. The bird went through motions of apparent egg-turning. Meanwhile, the other adult flew back and forth several times, carrying a white object; the bird perched on a high rock promontory, pecked at the object for a few minutes, then flew to the nest site with the object and disappeared from view into the site. Subsequently, the same bird flew out without the object and perched nearby on the sheer wall.

When an adult bird flew to the nest on 8 March, two hatchlings with heavy gray down were clearly observed. Only slight movement of the young was detected. Twelve days later, we returned to the quarry and spotted two young birds in the nest. When a adult arrived, three young were clearly seen, actively gaping for food. The bright red mouth and the yellow bill edge were readily seen with the telescope. The young were showing some black pinfeathers but still had an abundance of gray down. We checked the site on 28 March, a hot, muggy day with the nest in full sunlight. The adult bird was brooding the young birds during the entire observation. On 3 April, three well-feathered young were seen in the nest. One young, at the front edge, flapped vigorously while the other two nestlings were less active. Both adults were perched in trees nearby. The final nesting observation occurred on 17 April at which time four young and both adults were observed. The young had left the nesting site but were present (in pairs) on the quarry wall face approximately 50 feet below the nest. The four young ravens were all actively flying with the two adults on 29 April. Subsequently, all six ravens departed together on 1 May, but only the adults returned about two weeks later. This departure is a typical raven behavior in removing young birds from adult territory (Bent 1946).

Quarry personnel were very helpful in providing the following additional information: The adult birds fed regularly from "handouts" at noon each day and stored excess food in crevices of the rock wall; an adult was seen carrying a large rat to the nestlings; the ravens have been at the quarry year-round for approximately seven years but did not nest the first two years; the adults raised four young each year; annually the birds all departed as a family, but only the adults returned; the adult birds began destroying the nest, forcing the young to fledge.

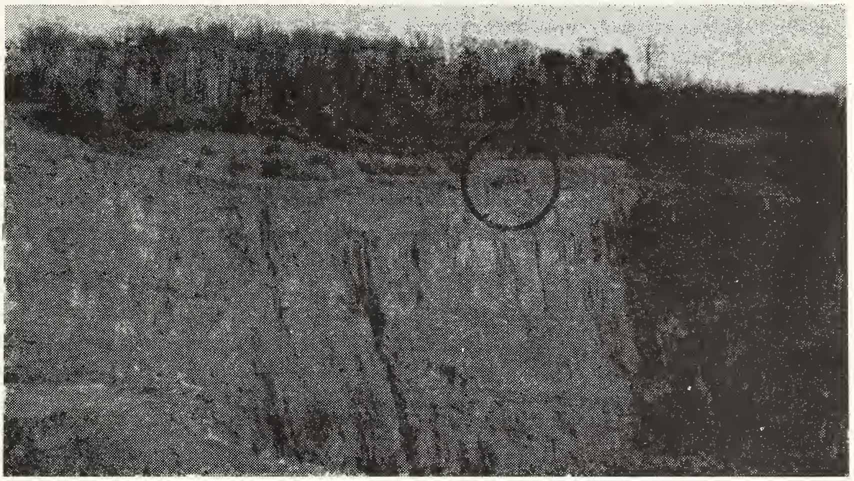

Fig. 1. Northern Raven nesting site in Forsyth County, NC

The extralimital nesting of Northern Ravens documented herein constitutes the first breeding record for Piedmont North Carolina, the lowest known elevation (850 feet) for breeding in the state, and the easternmost nesting locality reported in the state. Selection of this nesting site may reflect nothing more than aberrant behavior of a single pair that happened to discover a favorable manmade habitat outside the mountains. On the other hand, use of the Forsyth County quarry could presage a widespread reoccupation of low- and middle-elevation sites that may have been occupied when the species was more abundant than it has been throughout most of the present century. All March and April sightings of Northern Ravens outside their normal range definitely warrant prompt and thorough investigation.

Acknowledgments. We thank Billy and Susan Hammond for the consistent sightings of the adult birds, which led to the nesting documentation; the Vulcan Materials Company for granting us permission to monitor the birds; and the quarry personnel, especially Roger Bullins and Ricky Slate, who patiently escorted us and provided valuable information throughout the observation period.

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Razorbill Record for Huntington Beach State Park, S.C.

DON SERIFF
Caesar's Head State Park
8155 Gear Highway
Cleveland, SC 29635

At 1100 h on 26 January 1991, I observed an immature winter-plumaged Razorbill (Alca torda) at the South Jetty of Murrell's Inlet, Huntington Beeach State Park, Georgetown County, South Carolina. I watched the bird swimming and diving between the North and South jetties for about 45 min under excellent light and visibility conditions using 9x binoculars. During this period, I had supeb views of the bird and its activities (including swimming just below the surface) at close range.

The Razorbill was re-located and its identity confirmed by members of the Mecklenburg Audubon Society around 1300 h on 26 January. Lex Glover observed the bird on 27 January, and Caroline Eastman located and photographed (Fig. 1) the auk on 28 January. The bird was not seen after 28 January despite intensive serches by many observers. Each sighting of this bird occurred less than 2 hr after low tide.

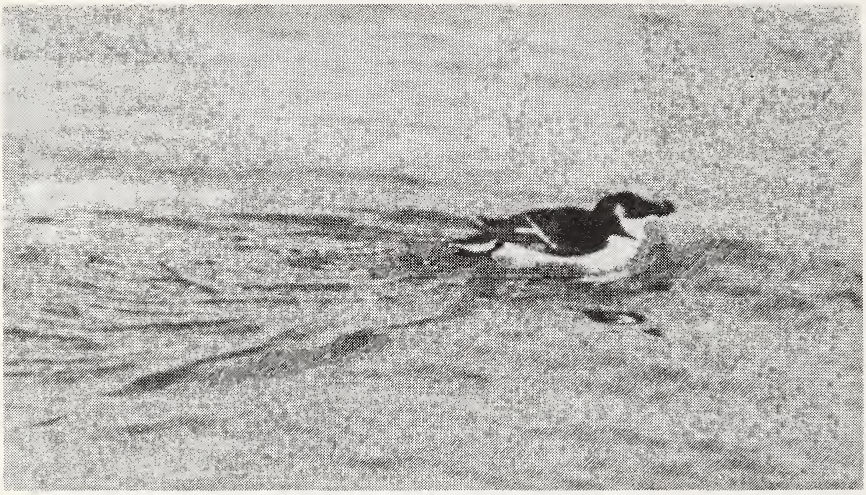


Fig. 1. Razorbill at Huntington Beach State Park on 27 January 1991. Photo by Caroline Eastman.

This sighting followed what appeared to have been a large southerly movement of alcids; as many alcids had been seen during the previous week off the southern coastal region of North Carolina (Taylor Piephoff, pers. comm., CBC Rare Bird Alert). Alcids are rare in winter off the South Carolina coast and views of alcids at this close range are highly unusual. According to Post and Gauthreaux (1989, Status and Distribution of South Carolina Birds, Charleston Museum Contr. #18, Charleston, South Carolina), there have been only ten previous records for Razorbills in South Carolina.

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1991)

RED-THROATED LOON: Very rare in summer was one seen by Pete Laurie in the harbor at Charleston, S.C., on 12 June.

PIED-BILLED GREBE: One was unusual in the mountains in summer on 25 June near Brevard, N.C. (Betty McIlwain).

HORNED GREBE: Eric Dean found one at the Goldsboro, N.C., wastewater treatment plant on the notable date of 20 June.

CORY'S SHEARWATER: Four were observed from shore at Atlantic Beach, N.C., on 22 June by Eric Dean.

GREATER SHEARWATER: Bob Anderson saw 14 birds off Oregon Inlet, N.C., on 9 June.

LEACH'S STORM-PETREL: A count of ten birds off Oregon Inlet was a surprise on 27 July, as observed by Mike Tove, Harry LeGrand, and others.

BAND-RUMPED STORM-PETREL: This species is regular but uncommon off the Outer Banks of North Carolina in summer, where counts of one off Oregon Inlet on 13 July (Paul DuMont party) and three there on 27 July (Mike Tove party) were made.

WHITE-TAILED TROPICBIRD: Paul DuMont and party saw one off Oregon Inlet on 13 July. On the previous day, Bob Holmes saw an unidentified tropicbird south-southeast of Beaufort Inlet, N.C.

NORTHERN GANNET: Rare in summer, especially on a pond, was an immature seen at the large pond at Cape Hatteras point, N.C., on 20 June (Pat and Neal Moore) and again on 24 June (John and Paula Wright).

AMERICAN WHITE PELICAN: The only summer report was of two birds seen by John Cely at Bear Island WMA, S.C., on 5 June.

GREAT CORMORANT: The species is becoming somewhat regular into late spring and summer along the North Carolina coast. John Fussell saw two subadults at the Cape Lookout bight on 7 June.

DOUBLE-CRESTED CORMORANT: Paul Saraceni counted at least 25 nests at Jordan Lake, N.C., during the summer; the species has nested there for several years, but only a few nests had been reported in any single summer. Two to three birds were seen near Brevard, N.C., during the first half of June, with one remaining until 30 June (Betty McIlwain, Norma and Bill Siebenheller). Ruth Young also had mountain records of cormorants at Fairview, N.C., on 25 June and at nearby Lake Julian on 2 August.

ANHINGA: Although well within the breeding range, an apparently new breeding site was at Eagle Island, N.C., where a pair built a nest in July (Sam Cooper). Lex Glover reported on a heronry at Matheson's Mill Pond, 3 miles southwest of Bennettsville, S.C., on 18 June. In addition to Anhingas, he noted Great and Cattle egrets, plus Little Blue and Green-backed herons nesting on that date.

AMERICAN BITTERN: John Cely saw one at Bear Island, S.C., on 10 July, and John Wright saw another at Eagle Island, N.C., on 23 July. The nesting status of the species at these locales is unknown.

REDDISH EGRET: Most surprising was an adult seen in a heronry in Ocracoke, N.C., in June (James Parnell). As many as two immatures were present at the western end of Sunset Beach, N.C., from 13 to 22 July, as observed by Roger McNeill, Russ Tyndall, and many others.

WOOD STORK: Rich Boyd saw one in flight over US 74 near the Lumber River in western Robeson County, N.C., on 29 July.

ROSEATE SPOONBILL: Two immatures were seen at Spring Island near Hilton Head Island, S.C., on 11 June by Graham Dugas. One to two birds remained here and at nearby Lady's Island through 5 July (many observers). These birds, or others, were seen later at the spoil area in nearby southern Jasper County. Birds were first seen there on 21 July, and as many as five spoonbills were seen on 4 August (Lex Glover, Robin Carter, Caroline Eastman).

BRANT: One was out of season at New Field at Pea Island, N.C., on 28 July, as seen by Mike Tove and Harry LeGrand.

AMERICAN WIGEON: Eric Dean saw a male at Goldsboro from 17 June to 25 July.

HOODED MERGANSER: Lex Glover observed two merganser ducklings with a Wood Duck brood on a pond at Cedar Creek on Road 296 near McBee, S.C., on 26 June. The ducklings were about 3/4ths grown.

RUDDY DUCK: Individuals (or perhaps the same bird) were seen at Goldsboro on 1 June and 16 July by Eric Dean.

OSPREY: Mark Simpson observed one soaring over Grandfather Mountain, N.C., on 2 June.

AMERICAN SWALLOW-TAILED KITE: John Cely found the first nest of the species reported in South Carolina between Francis Marion NF and the Savannah River during the summer. It was built in a cypress in Dorchester County. A migrant was seen at Cape Hatteras point on 6 June by Shawn Childress.

MISSISSIPPI KITE: Though the species still has not been found nesting in North Carolina, birds were seen at several new, potential nesting areas. Several birds were seen in June along the Neuse River near Smithfield (Mark Thompson); one was observed in extreme eastern Columbus County just south of the Cape Fear River on 22 July (John Wright); and an adult and two immatures were seen over Fishing Creek at the Edgecombe/Halifax county line, N.C., on 3 August (Wright, Peter Worthington). A migrant was seen on 3 and 4 June at Buxton, N.C. (Marcia Lyons). In South Carolina, Lex Glover saw a kite on a nest in Lee SP on 28 June. An active nest was found in downtown Camden for the third consecutive summer (Glover et al.). Glover saw six birds at Thompson Creek near Cheraw on 7 June.

BALD EAGLE: The species had a very poor nesting season in North Carolina, as only four young were fledged in the state (fide Tom Henson). On the other hand, of 60 active nests in South Carolina, 50 nests were successful and produced 81 fledglings (fide John Cely).

SHARP-SHINNED HAWK: Lex Glover observed an adult feeding a fledgling not yet capable of flight northeast of Kershaw, S.C., on 11 July. Also in that state, Glover and Kevin Calhoon saw an adult male with a Northern Cardinal in its talons at Sassafras Mountain on 1 July. In North Carolina, Simon Thompson saw one carrying food on 14 June near Lattimore in Cleveland County. He saw another bird on 20 June at Green Creek in Polk County. Norma and Bill Siebenheller saw three birds daily for a week in early August at Cascade Lake in Transylvania County; they believe that this was a family group.

COOPER'S HAWK: Individuals sighted in the coastal plain during the summer were in northern Jones County, N.C., on 12 June (Rich Boyd, Wade Fuller); near Bethel, N.C., on 26 June (John Wright); and northwest of Patrick, S.C., on 13 July (Lex Glover).

BROAD-WINGED HAWK: Breeding by this species in the coastal plain is poorly known and is complicated by the fact that migrant birds are still apparently present in the Carolinas into early June. The most significant report was the finding of an active nest, with two young, during late June in Camden, S.C. Bob, Jimmy, and Paul Wood first found the nest. Other June records from the South Carolina coastal plain were a pair on 3 June near St. Paul (Tim Kalbach), a pair on 11 June at Cedar Creek in Georgetown County (Kalbach), an immature on 14 June near Lone Star in Calhoun County (Kalbach), one near Aiken on 22 June (Anne Waters), and single birds noted by Lex Glover on 11 June at Hartsville, on 21 June northeast of Lancaster, and on 26 June northwest of Patrick. Summer reports for the North Carolina coastal plain involved single birds seen on 11 June at Havelock (John Fussell), on 11 June in western Lenoir County (Rich Boyd, Wade Fuller), on 12 June in northern Jones County (Boyd, Fuller), and on 26 June at Tarboro (Russ Tyndall).

AMERICAN KESTREL: Three birds, suggesting a family group, were seen by Eric Dean in southern Goldsboro on 14 June. Tim Kalbach noted the following records in the South Carolina coastal plain, all suggestive of local breeding: a pair carrying food in a clearcut near Alvin in Berkeley County on 13 May, an individual in a different clearcut near this town on 4 June, a male in a clearcut at Cedar Creek in Georgetown County on 16 May and 11 June, and a pair in a powerline clearing at Indiantown in Williamsburg County on 28 May and 27 June.

MERLIN: A late migrant was seen by Shawn Childress at Cape Hatteras point, N.C., on 6 June.

PEREGRINE FALCON: John Cely reported that successful nesting occurred by the species at Table Rock, S.C., for the second consecutive summer. Three young were fledged in 1991.

BLACK RAIL: John Wright heard three or four calling at dusk at a marsh along US 264 at the Hyde - Beaufort County, N.C., line on 24 June. He heard Virginia Rail, King Rail, and Marsh Wren also at this marsh.

PURPLE GALLINULE: Two adults and an immature were found at a pond in Allendale County, S.C., on 27 July by Robin Carter and Caroline Eastman. An adult was seen by John Wright at a pond north of Southport, N.C., on 23 July.

KILLDEER: Sam Cooper had a good tally of 111 Killdeers at Eagle Island near Wilmington, N.C., on 8 July.

BLACK-NECKED STILT: A notable count of 44 birds was made by Sam Cooper at Eagle Island on 12 July, and he noted 15 young at that site on 16 July. Locally rare was a pair at an impoundment at Davis, Carteret County, N.C., on 9 June (John Fussell).

LONG-BILLED CURLEW: There were a surprising three reports from the North Carolina coast in summer. One was noted at the western end of Shackleford Banks on 6 June (John Fussell et al.), one was at the southwestern end of Ocracoke Island on 3 July (Frank Witebsky, Neal and Pat Moore), and one was at Fort Fisher on 23 July (John Wright).

WESTERN SANDPIPER: Tim Kalbach reported one on the very late date of 8 June at Bear Island WMA, S.C. Two Least Sandpipers were also present.

BAIRD'S SANDPIPER: At Pea Island, Bob Holmes and Wade Fuller observed one on 22 July, and John Wright saw two molting adults at that locale on 26 July.

CURLEW SANDPIPER: Two birds in breeding plumage were seen by Marcia Lyons, Derb Carter, and Jan DeBlieu at North Pond on Pea Island on 17 July. One was still present there on 28 July (Carter et al.).

STILT SANDPIPER: Sam Cooper noted the first bird of the summer at Eagle Island on 29 June, and he had an excellent peak count of 224 Stilt Sandpipers there during July.

RUFF: At Eagle Island, Sam Cooper found a male in partial breeding plumage (much black on the head and neck) on 5 July. It was last noted on 11 July, by John Wright.

WILSON'S PHALAROPE: Bob Holmes observed one from 29 July to 5 August at a spoil pond between Morehead City and Beaufort, N.C.

RED-NECKED PHALAROPE: Always of interest inland, one bird was found dead at the Ridgeway Gold Mine, Fairfield County, S.C., on 27 May (John Cely).

POMARINE JAEGER: Single birds were seen on pelagic trips off Oregon Inlet on 13 July (Paul DuMont party) and on 27 July (Mike Tove party).

PARASITIC JAEGER: Bob Holmes saw three Parasitics about 4 miles off Beaufort Inlet, N.C., on 12 July.

LESSER BLACK-BACKED GULL: Very surprisingly, there were two summer reports, both from the North Carolina coast. An adult was seen by Harriett Whitsett at Bird Island near Sunset Beach on 13 June, and a subadult was seen by Gilbert Grant at North Topsail Beach on 23 June and 18 July.

GREAT BLACK-BACKED GULL: John Fussell and others reported a pair of adults at Sandbag Island at Cape Lookout in June. If the birds were nesting, as suggested by the observers, this would be the southernmost nesting site on the Atlantic coast.

ROSEATE TERN: Again this summer, an adult was reported, with no indication of nesting, at Cape Hatteras point. It was seen from at least 20 June (Pat and Neal Moore) to 21 July (Russ Tyndall, Angela Mason).

SOOTY TERN: Information about breeding by the species in the Carolinas during the 1991 summer was not received. However, offshore reports were of one off Charleston on 25 July (Kevin Calhoon, Lex Glover) and two off Cape Hatteras on 28 July (Greg Massey, Maurice Barnhill).

BROWN NODDY: The second report of a noddy for North Carolina during 1991 was a bird seen about 20 miles east of Cape Hatteras on 28 July by Greg Massey and Maurice Barnhill.

BARN OWL: Paul Saraceni found a dead bird in a road at Pungo NWR, N.C., on 28 July. The breeding status of the species in the interior coastal plain of the state is very poorly known.

NORTHERN SAW-WHET OWL: Mark Simpson heard one calling at an elevation of 5100 feet on the west slope of Calloway Peak (Grandfather Mountain), N.C., on 2 June.

WHIP-POOR-WILL: Anne and Vernon Waters heard three calling on 2 June near Jackson, S.C., and another near the edge of the range was calling on 10 June just west of Georgetown, S.C. (Bill Pulliam). Rich Boyd and Wade Fuller heard nine Whip-poor-wills, but only one Chuck-will's-widow, at Camp Bryan near Lake Ellis Simon in southern Craven County, N.C., on 17 June.

ALDER FLYCATCHER: Perhaps a new summer location for the species was the report of a singing male, apparently on territory, at the summit of Big Yellow Mountain in Avery County, N.C., on 22 July (Mark Kiser).

GRAY KINGBIRD: One was seen and photographed on a telephone wire near the Bodie Island lighthouse, N.C., on 27 May by Leslie Willis.

HORNED LARK: An adult and a juvenile were seen at the Morganton - Lenoir Airport, N.C., from 8 to 19 May by Merrill Lynch and party. In central South Carolina, where poorly known as a breeder, singing males were noted by Tim Kalbach in Clarendon, Calhoun, Florence, and Orangeburg counties in the summer, and adults with fledged young were seen by him in Williamsburg County. Robin Carter and Caroline Eastman saw the species at sod farms near Orangeburg and Blackville during the summer.

TREE SWALLOW: The species again apparently nested at Jordan Lake, Chatham County, N.C., where Paul Saraceni saw at least one adult at dead trees in the water on 23 June. Six adults, probably early migrants, were seen near Currituck, N.C., on 7 July by Paul Sykes.

CLIFF SWALLOW: At the southeastern edge of the breeding range were approximately 50 pairs at the Long Cane Creek bridge (SC 28) in McCormick County, S.C. (John Cely). The species apparently still nests at Oriental, N.C., where Rich Boyd saw about 12 birds at a bridge there on 1 July.

COMMON RAVEN: Toby Gordon saw at least three on 16 April at Moore's Wall in Hanging Rock SP, N.C., and he saw another bird on 10 April at nearby Sauratown Mountain. Breeding has apparently never been reported from these mountains, and no such evidence was seen later in 1991.

BROWN CREEPER: Robert Reid and party found a nest of creepers in Linville, N.C., on 8 June. At low elevations in the mountains, in Transylvania County, N.C., one was seen singing at Davidson River campground on 8 June (Betty McIlwain et al.) and another was singing from 11 to 25 June at Deerlake Village near Brevard (Joanne Pope, McIlwain, and others).

HOUSE WREN: Bill Pulliam noted a singing male on territory in June near Georgetown, S.C., but there was no evidence of breeding. Kevin Hennings found an active nest in a burned-over clearcut 7 miles northwest of Fort

Lawn, Chester County, S.C.. He saw a singing bird there on 29 May, and on 9 June he saw a female carrying insects to a nest hole in a pine stub; the male was singing nearby. Near the North Carolina coast, where apparently breeding in recently-burned areas, John Fussell heard four singing at the Millis Road savanna in western Carteret County on 21 June. Another was noted on 17 June in southern Craven County by Rich Boyd and Wade Fuller.

AMERICAN ROBIN: Dennis Forsythe and others reported that the species is expanding its breeding range in the Charleston area. Single pairs were noted at Ravenel, Charleston, Isle of Palms, and Mount Pleasant, and several pairs were in the Jedburg - Knightsville area.

CEDAR WAXWING: Kevin Hennings found an active nest at Donnaha Park in Yadkin County, N.C., in June; and Lex Glover found a pair at Carolina Sandhills NWR, S.C., on 7 June, plus a bird there on 26 June carrying food to a nest or fledglings. Perhaps not yet breeding were flocks of 20 on 15 June near Laurinburg, N.C. (Robin Carter) and six on 8 June along the North Pacolet River in Spartanburg County, S.C. (Carter).

SOLITARY VIREO: Herb Hendrickson noted at least three males near Price, N.C., on 14 and 24 June, for a rare mid-piedmont summer record for that state. Well to the south of the normal breeding range was a singing male in a pine plantation near Tillman, Jasper County, S.C., on 4 July (Robin Carter, Caroline Eastman), and another singing male was seemingly out of range in Harbison State Forest in Richland County, S.C., on 14 July (Carter, Eastman). Lex Glover noted a singing bird in Lee SP, S.C., on 28 June.

PHILADELPHIA VIREO: Completely inexplicable was a singing bird seen by Lex Glover at Lee SP, S.C., on the very late date of 11 June.

GOLDEN-WINGED WARBLER: Tim Kalbach and others noted a singing male on the North Carolina side of Sassafras Mountain, which straddles the state line with South Carolina, where the species has not been found nesting in this century. The bird was found on two dates in late June.

ORANGE-CROWNED WARBLER: Bob Wood photographed one at Sassafras Mountain, Pickens County, S.C., on 28 April.

CHESTNUT-SIDED WARBLER: Tim Kalbach noted a singing male on 28 and 30 June at Sassafras Mountain, where the species has been seen in summer in the past 20 years and may well breed.

BLACKBURNIAN WARBLER: A good single-observer count for the breeding season was 17 singing males along the Joyce Kilmer Memorial Trail in the Unicoi Mountains, N.C., on 1 June (Mark Simpson). An early migrant, or post-breeding wanderer, was found by Peter Worthington on 25 July at Simpsonville, S.C.

PALM WARBLER: Quite early was a migrant seen by Lex Glover on 27 July in southern Jasper County, S.C.

BLACK-AND-WHITE WARBLER: Lex Glover had birds during June near the following towns near the South Carolina Fall Line: Ruby, Pageland, Patrick, Lucknow, Society Hill, Clio, and Kershaw. He saw a female feeding a fledgling on 3 July southwest of Clio. Nearer to the coast, Tim Kalbach noted two singing males on 16 May near Andrews, S.C., and he found a pair on 16 May at Cedar Creek in Georgetown County.

AMERICAN REDSTART: Tim Kalbach saw a singing adult male on 4 June near Pineville, Berkeley County, S.C.; and Lex Glover saw a female carrying food southeast of Jefferson, S.C., on 27 June. Peter Worthington reported that the species nested successfully during the summer in central Laurens County, S.C.

WORM-EATING WARBLER: Near the inner edge of the coastal plain population were several found by John Wright at Grindle Pocosin near Bethel, N.C., on 23 June. The breeding range in the coastal plain of South Carolina, presumably limited to the northern half of the province, is very poorly known, but several birders noted significant records. Bill Pulliam saw a fledgling with an adult on 5 June in a pine forest near a bottomland near Plantersville. Tim Kalbach saw a singing male on 7 June near Summerville. Lex Glover saw a bird carrying food near Dalzell in Sumter County on 23 June, saw another bird carrying food southeast of Jefferson on 12 July, and noted a singing male near Pageland on 27 June.

SWAINSON'S WARBLER: At an unusual location and high elevation was a singing bird heard on 19 May near Bushy Creek east of the Avery County, N.C., airport (Merrill Lynch, John Wright, Derb Carter). Locally scarce were two singing birds east of Grifton, N.C., on 18 June (Wright), and one singing at Weldon, N.C., on 23 June (Rich Boyd, Wade Fuller).

OVENBIRD: This species has apparently been overlooked in much of eastern South Carolina during the breeding season, as several "atlassers" found them easily. Tim Kalbach saw fledglings in Berkeley and Orangeburg counties and had at least eight singing birds at four sites in Georgetown County. Bill Pulliam noted four singing birds near Plantersville and found a nest with young in that area on 20 June. Pulliam also noted a singing male about 10 miles south of Georgetown for much of June.

SCARLET TANAGER: John Wright found the species in June at three sites in Pitt County, N.C., with an excellent five singing males east of Grifton on 18 June. A pair was rare northwest of Hoffman, Richmond County, N.C., on 23 June (Harry LeGrand). Kevin Hennings found a nest 7 miles northwest of Fort Lawn, S.C., on 30 June. Lex Glover saw a singing male at Flat Creek northeast of Kershaw, S.C., on 19 June, and Robin Carter and Caroline Eastman noted a singing male on 14 July at Harbison State Forest, S.C.

PAINTED BUNTING: This species is apparently widespread, though certainly uncommon, in summer in many coastal plain counties of South Carolina. Tim Kalbach noted the species in 12 atlas blocks in Berkeley, Calhoun, Clarendon, Dorchester, Orangeburg, and Williamsburg counties. Excellent totals by him were 11 singing males near Eutawville on 29 May and six singing males near Cameron on 23 May. Lex Glover saw a pair carrying food southwest of Ruby in Chesterfield County on 12 July, and he had a male at his feeders in Lugoff on 21 July. Barny Dunning observed males on both Breeding Bird Survey routes he ran east of Aiken. [Despite all of these inland records for South Carolina, Painted Buntings have still not been reported as breeding in North Carolina away from coastal areas. — HEL]

DICKCISSEL: Singing males were reported by Harry LeGrand at two sites south of Maxton, N.C., on 1 June, and Robin Carter located the birds on 15

June. The only other summer report was from Simon Thompson, who found singing males at two sites in western Gaston County, N.C., on 14 June.

BACHMAN'S SPARROW: John Fussell counted 55 territorial males at Camp Lejeune, N.C., during spring and summer; all but one were in typical open pine forests, with the other in a clearcut.

SAVANNAH SPARROW: Harry LeGrand heard one singing on a grassy hilltop about 3 miles southwest of West Jefferson, N.C., on 15 June. Jeremy Nance saw and heard one on several dates in May at an elevation of 2760 feet near New River SP, also in Ashe County, N.C. Conclusive breeding evidence for the species in that state is still lacking.

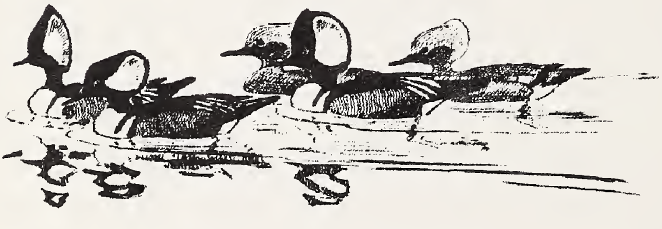
SONG SPARROW: Near the edge of the breeding range was a singing sparrow noted on 20 July in Greenwood, S.C., by Robin Carter and Caroline Eastman.

WHITE-THROATED SPARROW: Robert Reid observed a very late bird at Little Switzerland, N.C., on 12 June.

SHINY COWBIRD: This increasing visitor from the tropics was noted by Will Post in his yard at Sullivans Island, S.C. He observed a cumulative total of five different birds, three males and two females, between 30 April and 13 July; two males were collected and deposited in the Charleston Museum.

NORTHERN ORIOLE: Kevin Hennings observed an active nest on 11 and 27 June at Donnaha Park in eastern Yadkin County, N.C. Simon Thompson had two confirmed nestings in Tryon, N.C., again this summer, and he noted a pair building a nest in Pacolet Valley, also in Polk County, during the summer.

RED CROSSBILL: Mark Simpson observed small flocks of the species in late May and early June at Mount Mitchell SP and Grandfather Mountain in North Carolina, but there were no reports suggestive of breeding.



BOOK REVIEW

BIRD MIGRATION

Thomas Alerstam (Univ. of Lund, Sweden); translated by D. A. Christie. 1990 (1982 in Swedish) Cambridge University Press, New York, 10011. Hardback, 391 pp + bibliography & index; $105.00.

This book is an excellent study of the ecological factors which lead to speciation within a given community of birds, and how the individual species with similar foraging techniques have evolved their own peculiar migration strategies, whether truly annual or irruptive, so as to optimize the individual survival rate within each species, and thereby contribute to that species' survival.

To do this, the author, in the first portion of the book, selects one or more examples of each group of birds, defined by their foraging techniques (surface feeders, divers, grazers, raptors, seed-eaters, etc.), to discuss how this particular food source leads to either regular or irregular migration patterns, with either constant (seed-eaters) or variable (frugivores) wintering areas. Among sea birds, since diving birds take most of their food from deeper waters, where temperature constancy leads to a more constant level of prey availability, they need to move only far enough south to assure ice free water in winter. In contrast, surface water feeders, whose prey tends to disperse as surface waters become chilled, must find bodies of water of sufficient temperature to support an adequate concentration of prey species.

The second portion of the book devotes itself to the mechanics of migration, methodology of studies, speed, weather factors, altitude, flocking, etc. While very complete, this section suffers occasionally by the fact that the original text appeared in 1982, with most data being limited to the period prior to 1980. The author recognizes this drawback in the preface to the English edition, and where possible, some updating has been included in both text and tables, very smoothly and unobtrusively.

Of special interest to a falcon devotee, like myself, is a small section devoted to two old world species, the beautiful Eleonora's Falcon and the Sooty Falcon. These two falcons have developed specialized breeding cycles and hunting techniques, to take advantage of the fall passerine migration, over the Mediterranean and Gulf of Cadiz (Eleonora's) and the Arabian and Libyan deserts (Sooty). Both species lay eggs at the end of July into early August. When the eggs hatch in late August, the fall migration has started and ample food is available through the nestling period into early October. The Eleonora's Falcon, which is a colonial island nesting species, has even developed group hunting techniques where all the males in a given colony set up picket screens to intercept passerines traveling over a wide front, and at different altitudes. These techniques vary from colony to colony, to satisfy local geographic conditions, and the distance from mainland jumping off points of the prey.

The translation is excellent, and the narrative style of the author flows well making this book far easier to read than most other technical volumes. As a whole, very worthwhile, with only the $105 price a major drawback to its addition to a home library.— Peter Worthington

NEW WORLD PARROTS IN CRISIS: Solutions from Conservation Biology

Steven R. Beissinger and Noel F.R. Snyder, eds. 1992. Smithsonian Institution Press, Washington, DC, 20560. Hardback, 288 pp with index.

This volume is the result of symposium held at the meeting of the American Ornithologists Union in June 1990 precipitated by a proposed resolution to ban the importation of all wild-caught exotic birds. As the vast majority of the these imports are neotropical parrots (at least 1.8 million imported into the United States legally between 1982 and 1988), the focus is understandable. It becomes quickly apparent as you read this book that the problem is not a strictly biological one, but that it is compounded by a real lack of basic biological information.

Fifty–two of the approximately 140 species of New World parrots are considered threatened or near-threatened. The presumed causes of these precarious situations are seldom clearly understood, but include capture and export for the pet and avicultural trade, extermination as agricultural pests,, consumption as food, and massive destruction of tropical forests. Although capture and exportations have been regulated by the Convention on International Trade in Endangered Species (CITES) for more than a decade, it appears that the numbers of individuals in the wild have continued to decline while the numbers of birds traded remains high. While many biologists doubt that the levels of birds being traded can be sustained by the demographics of the wild populations, there is little or no hard demographic data available on any of the species involved. Given the lack of good information about habitat needs of many parrot species, it is even possible to excuse market-collecting as a way of saving birds that "will only die anyway as their forests are removed".

What makes this book truly fascinating is the wealth of expertise that is presented in exploring the options available to address the problem(s). Butler's chapter on education and changing popular attitudes in the Lesser Antilles as a way of conserving species of large *Amazona* was encouraging. Munn's chapter on eco-tourism should hit sensitive chords among many of the members of the CBC. The roles of aviculture and captive breeding programs are explored in two chapters that offer little hope for optimism. Reintroduction, on the other hand appears to offer real possiblities given the proven track record that some parrot species have demonstrated in their ability to adapt to human-modified environments (note the breeding of Monk Parakeets in Swannanoa, NC). On the other hand, all species of parrots are not the same, and there is little known about which species are more or less adaptable in this regard. Bucher's chapter on parrots as agricultural pests (mostly based on experiences in Argentina) demonstrates that conservation issues are always sociological and political issues as well. A chapter on the pet trade and its implications for conservation is well-written and should be read carefully. Finally there is a transcript of the open discussion held during the AOU meeting in Los Angeles and a pulling together of the disparate ideas presented in the preceeding chapters.

While the future for New World parrots does not look rosy, there are possibilities for fending off devastation. As is so often the case, the solutions are in the hands of humans who must be willing to make decisions based on long-term goals that appear to be at odds with short-term gains.—H. T. Hendrickson

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CBC

General Field Notes

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NOTICE

Publication of any unusual sightings of birds in the Field Notes or Briefs for the Files does not imply that these reports have been accepted into the official Checklist of Birds records for either North or South Carolina. Decisions regarding the official Checklists are made by the respective State Records Committees and will be reported upon periodically in THE CHAT.

Warm Winter Weather Prompts Early Nesting Attempts in the Piedmont of North Carolina

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Throughout most of the month of December 1991 and early January 1992 male American Robins (*Turdus migratorius*) were observed singing in the center of the campus of the University of North Carolina at Greensboro. Their large size and dark color suggested that these were wintering robins of the northern race *T. m. migratorius,* not the resident breeding race *T. m. achrusterus*. Because no specimens were collected and no measurements made, we are unable to make any definitive statements about subspecific status. Although robins are frequently reported on the Audubon Christmas Bird Count from this location, it is not usual to hear them singing.

On 21 January 1992 Spencer observed an apparent female robin sitting on a nest in the middle of the UNCG campus. The nest was located 1.6 m above the ground at the top of the trunk of a grafted Japanese Pink Weeping Cherry tree (*Prunus subhirtella pendula*) on the E. side of College Avenue in front of the University Faculty Center. The nest was relatively conspicuous as the tree was without leaves. The bird continued to sit on the nest, and on 25 January Hendrickson confirmed that it contained three eggs. When Spencer again checked the nest on 27 January no incubating bird was evident; but there were three newly hatched young. Assuming an incubation period of 11 to 14 days

(Tyler 1949), this would place the time of laying for the first egg somewhere around 13 January.

Between 27 January and 3 February we observed the female either brooding the young or feeding them. On 4 February, Hendrickson found the adults had abandoned the nest, leaving three dead young. We suspect that the cold weather of early February (low temperatures of 29, 21 and 30°F were recorded on the first three days) forced the adults to spend maximum time brooding the young to maintain their body temperature and simultaneously minimized the availability of high-protein food in the form of invertebrates needed to sustain growth of the young. In brief, the young probably died of malnutrition. We observed an abundant supply of various kinds of fruits to meet the food requirements of the adult birds.

We continued to hear male robins singing on campus into late February, and saw large flocks of presumably non-breeding birds feeding on the abundant fruits.

Robins usually lay the first of their two or three clutches in the central Piedmont of North Carolina in early April (Potter et al. 1980; Pearson et al. 1942; pers. obs.). Tyler (1949) reported them laying eggs in late March or early April in various other parts of their range. Harrison (1975) reported two instances of winter breeding: a nest with eggs in January 1965 at Ellwood City, Pennsylvania and one with young in December 1965 from Columbus, Ohio. Neither nest was successful. Clearly, the pair in Greensboro were significantly ahead of the normal schedule.

On 17 February 1992 William (Bill) Craft reported finding two active nests of Mourning Doves (*Zenaida macroura*) while attempting to collect fruits of Chinese Windmill Palms (*Trachycarpus fortinia*).

The first nest, located on the S side of the First Presbyterian Church, 617 N. Elm Street, was found at a height of about 2.33 meters and contained two well-feathered young. As the incubation period for this species is approximately fifteen days (Tyler 1932) this would suggest the time of laying was at least 30 January. The second nest, located on the W side of Holy Trinity Episcopal Church, 607 N. Greene Street, was found at a height of 2.9 meters and contained two eggs. Hendrickson visited both nests on 18 Feb. (high temperature was 47°F with drizzle) and found both nests with sitting adults.

On 20 February John Schoonover (pers. comm.) reported finding half an eggshell on his driveway in Archdale. The size and color of the shell led him to identify it as a probable Mourning Dove egg. Assuming this was a shell from a recently hatched egg that had been removed by a parent, the time of laying was approximately 6 Feb.

Pearson et al. (1942), Quay (1951) and Potter et al. (1980) reported that the usual time for laying the first clutch by Mourning Doves is mid- to late March. Quay (1951) reported the earliest egg record as 8 March in Garner, and Murray Allen reported a nest with two eggs 5 mi. S of Raleigh on 7 March 1955 (Chat 19:71), but Bailey (1969) reported one from Durham laid between 9 and 12 February. Tyler (1932) reported egg dates in Florida as early as 11 March and in Texas as early as 20 February. In South Carolina, Sprunt & Chamberlain (1949) reported the earliest record of nesting from Bishopville 10 February 1949. Equally unusual was a nest with two eggs reported by Ted Beckett from Charleston County, SC during the last week of Dec 1946 (Sprunt

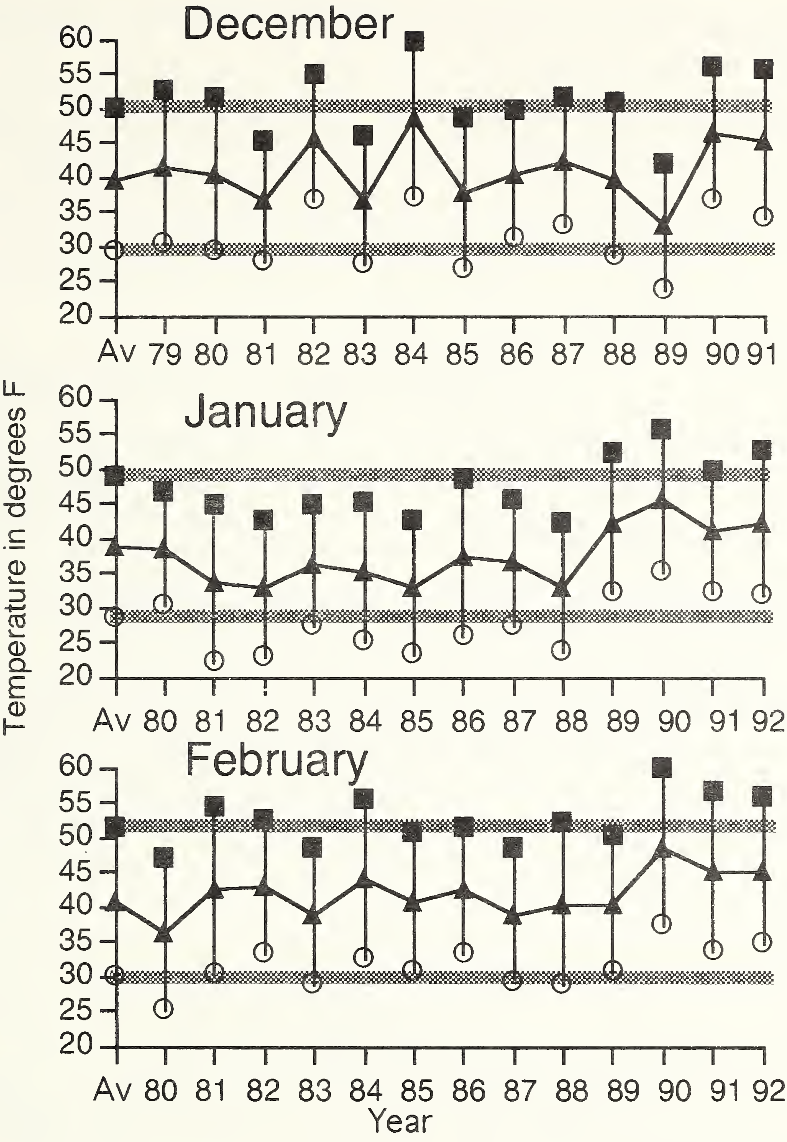

Fig. 1. Mean temperatures in °F for December, January and February from 1979-80 through 1991-92. Solid squares show mean daily high temperatures, solid triangles show mean daily average temperatures, open circles show mean daily low temperatures. The temperatures on the vertical axis labeled Av have been extended across each chart to show mean daily high and low temperatures for the period 1941-1970. Data from annual reports of the National Weather Service.

& Chamberlain 1949). In Virginia, M.D. Hart once found eggs at Ashland in mid-February (Murray 1952). The three nestings reported here are also significantly early for this geographic area.

A pair of Mallards (*Anas platyrhynchos*) built a nest and commenced laying eggs on 16 Feb behind the home of John and Sharon Egan (pers. comm.) in southern Guilford County. By 20 February there were six eggs in the nest. A pair of Mallards nested at this same locality last year and their eggs hatched on 31 Mar 1991. The incubation period of Mallards is usually 26 days (Bent 1925, Kortright 1943) and begins with the last egg. A clutch size of ten to twelve, with one egg laid per day, would put the onset of laying at approximately 21 Feb. The Egans stressed that these are not "pet ducks" although their history *vis a vis* domestication and/or captivity is unknown.

We had the subjective feeling that this was a relatively mild winter. An examination of the local climatological data from the National Weather Service Station at the Greensboro-Winston-Salem-High Point (Piedmont Triad International) Airport (Fig. 1) confirmed our suspicions. We have plotted the mean daily high, average and low temperatures for December, January and February from the winter of '79-80 to the present. The thirty-year average figures for the period 1941-1970 are extended across each graph as a pair of horizontal bars signifying highs and lows. It is noteworthy that the last two winters have been warmer than the average and the last four Januarys have been warmer than average. The warm Januarys are particularly apparent as the preceding eight Januarys all appear to have been colder than average.

We believe that these observations are important in demonstrating the flexibility inherent in many populations with respect to the onset of reproduction. While most individuals in a population may breed within a fairly limited time period, it is possible to find some that differ from the norm. It is these variants that have the potential for altering the future characteristics of the species if and when environmental circumstances favor these unusual traits.

We gratefully acknowledge the assistance and suggestions offered by Eloise Potter, Lynn Moseley and an anonymous reviewer in the preparation of this paper.

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Harris' Sparrow in Durham County, N. C.

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On 21 April 1991 the senior author was birding on the Durham, NC spring count along Brickhouse Road (SR 1630) just N of Falls Lake in northeastern Durham County. On that cool (temp. 45° F) and rainy morning, he observed an adult Harris' Sparrow (*Zonotrichia querula*), in a hedgerow among open fields at a wildlife management area. The bird was associating with White-throated Sparrows (*Z. albicollis*), a White-crowned Sparrow (*Z. leucophrys*), and Field Sparrows (*Spizella pusilla*). He watched the Harris' Sparrow for one minute at a distance of 15 feet with 10x binoculars.

Budnitz noted that the bird was an adult in breeding plumage. It was clearly larger than the White-throated Sparrows it was associating with, and it had a more erect posture. It had a black face (forehead, sides, and chin) surrounding a pink bill. The black extended down through the throat and ended in a tapering point on the breast. The bird also had a blackish cap, though this was harder to distinguish because it was wet and the feathers were blowing in the wind. The belly was light with some streaking on the sides. The longish tail appeared to be notched. The back was dark brown.

The Harris' Sparrow was observed by several dozen birders through 4 May. All seven members of the N.C. Bird Records Committee, including the junior author, saw the sparrow, and Richard Davis heard the sparrow singing.

This appears to be the sixth record for North Carolina. Olson (Chat 42:60-61) summarized the first four records, and a fifth record was also published in The Chat (45:84). The records now include two from the mountains, two from the western Piedmont, and two from the lower Piedmont. The previous records were grouped between November and March. This Durham County record is by far the latest sighting for North Carolina, with the most brightly-plumaged individual reported for the state. Most importantly, this appears to be the first Harris' Sparrow that was studied by a group of birders over an extended period of time.

Northern Goshawk on the Coastal Plain of North Carolina

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On 28 March 1992, we observed a Northern Goshawk (*Accipiter gentilis*) on the edge of county road 1120, about 3 miles NE of the Moores Creek National Battleground in Pender County, NC. We were trapping and banding raptors and, in fact, tried (without success) to lure the goshawk with our mouse-baited balchatri.

The bird was remarkably unconcerned about our presence, and from our car we gained an unobstructed view (with and without binoculars and in full light) at a distance of no more than 25 yards from its perch in a small tree some 20 feet above ground. Gregory and Gregory (1982) noted what they called "brazen" behavior of a Northern Goshawk observed in Wake County, NC; they walked within 40 feet of the bird before it bothered to move, when it flew just another 30 feet. In our case, we observed the bird at the time the balchatri was dropped, then again for several minutes at the time the trap was retrieved. The bird remained perched throughout the entire period of our observation, perhaps 25 minutes from start to finish.

The goshawk we observed was in adult plumage; its prominent white brow-stripe over a black cheek, gray back and pale breast were obvious, as was its long tail (whose muted bands also were visible a such close range). The bird's fiery red eyes were especially conspicuous, not unlike those of the Mississippi Kite (*Ictinia mississippiensis*) with which we are familiar. Although we could quite clearly see the white plumage under the tail, the oft-cited fluffy nature of these feathers was not readily apparent. In size, the bird was more robust and half again as large as a Cooper's Hawk (*A. cooperii*) and lacked any of the latter species' characteristics (e.g., reddish-barred breast). We also are familiar with the male plumage of the somewhat similarly sized Northern Harrier (*Circus cyaneus*), but the head markings and eye color of the bird we observed clearly eliminated confusion with the latter species; nor was the wooded habitat and resolute perching behavior at all typical of harriers.

Southern records for Northern Goshawks seldom include sightings from the coastal plain of North Carolina. For the latter region, we are aware of a record for September 1978 at Fort Fisher in New Hanover County (Davis and Parnell 1983). A winter sighting of a goshawk at Lake Phelps in coastal Washington County, NC, gave pause to LeGrand (Chat 54:23), who remarked that such a record was "amazing," given that the few accounts of the species in North Carolina usually occur only in the mountains or piedmont. An immature goshawk was reported (Chat 41:99), also in March, at Oak Island near Long Beach in Brunswick County, NC, some 45 air miles south of our sighting in Pender County. Two adults were sighted at Long Beach in October 1977, and a lone bird was recorded in Northhampton County near Occoneechee Neck (Chat 42:62). The possibility remains that any of these sightings, including our observation in Pender County, might be an escapee from either a falconer or an aviary. However, we did not observe a falconer's jesses on the bird's tarsi, nor are we aware of any aviaries in the surrounding area whose collections include large raptors, although either a falconer or an aviary might be operating without notice.

Based on Knight's (1990) analysis, March is among the months when relatively few Northern Goshawks are observed in North Carolina and Tennessee (i.e., 9 of 92 records). We trust our observation of a Northern Goshawk in the coastal plain of North Carolina may help unravel the species' uncertain status in North Carolina (see Potter et al. 1980). At present, the Northern Goshawk is not included in the checklist of the Lower Cape Fear Bird Club.

We thank J. F. Parnell for calling our attention to the sighting at Fort Fisher. Parnell, H. C. Mueller, and R. L. Knight kindly reviewed a previous draft of our manuscript.

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Wasps as Scavengers on Dead Bird

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About 1630 h EDT on 1 October 1968, I found a dead Swainson's Thrush (*Catharus ustulatus*) lying on its back on the ground beneath a large window to the living room of my home near Zebulon, Wake County, North Carolina. Nearly all the feathers and most of the flesh had been removed from its breast, but the remaining plumage was undisturbed. The missing feathers lay in a neat, V-shaped pile with the point of the V about 7.5 cm from the head of the bird. Two small wasps commonly called "yellow jackets" (*Vespula* sp.) were feeding on the carcass, burrowed deep inside with only the tips of their abdomens protruding on each side of the sternum. The wasps diligently guarded their prey from several species of flies and the human intruder. Using a 7 X 50 binocular from about 4 m away, I saw one wasp remove a feather and deposit it at the point of the V-shaped pile. Apparently air currents created by the wings of the wasps had caused the feathers to become distributed in a V instead of in a circular mound. For a period of about 3 hours between 1630 h and sunset, from one to five yellow jackets fed constantly on the carcass.

The morning of 2 October the wasps were again feeding on the dead thrush, but the pile of feathers had become scattered. About 0830 h, a Gray Squirrel (*Sciurus carolinensis*) discovered the bird and proceeded to tear it apart to obtain food from the wings, head, and belly. Following the squirrel as it carried the prey several feet away, the wasps repeatedly attempted to continue feeding on the bird, but they apparently did not sting their competitor. After the squirrel abandoned the carcass, the yellow jackets removed shreds of flesh from the bones and feathers until sometime in the afternoon of 2 October.

Vespine species are known to prey on flies, honeybees, and other insects and also to "carve pieces from fruit and dead vertebrates" (Edward O. Wilson, The Insect Societies, The Belknap Press of Harvard University Press, Cambridge, Mass., 1976, p. 20-21). Gilbert S. Grant (pers. comm.) reports that yellow jackets regularly pick flesh from the waste when he cleans fish outdoors and that he has seen as many as 20 to 30 yellow jackets feeding on the brain of a slaughtered sheep. Yellow jackets' taste for meat will not surprise any picnicker who has unwillingly shared a ham sandwich with them.

Although yellow jackets are well known as scavengers, I have found no reports, published or otherwise, of their plucking feathers from dead birds, nor have I seen that behavior again during the 24 years that have elapsed since my 1968 observation. The wasps' role in the process of decomposition is undoubtedly obscured by subsequent feeding by other species. Had I seen only the activity following the arrival of the squirrel, I certainly would have viewed the mammal as the primary scavenger and would have been totally unaware that the yellow jackets had plucked feathers from the breast of the dead Swainson's Thrush before feeding on its carcass.

Opportunistic Foraging on Swarming Ants by Gulls, Shorebirds, and Grackles

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Gulls are opportunistic omnivores, which feed on a variety of fish (live and dead), garbage, berries, rodents, bird eggs, and insects (Bent 1963). Seymour (1972) observed three species of gulls hawking ants, and Harlow (1971) and Baird and Meyerriecks (1965) observed many species, primarily passerines, feeding on swarming ants. Lee and Clark (1981) reported on Common Terns (*Sterna hirundo*) feeding on insects over land on Bodie and Pea Islands, North Carolina. In this note I describe an episode of aerial feeding on swarming ants by gulls and feeding on grounded ants by gulls, shorebirds, and grackles.

Between 1500 and 1600 h on 14 November 1988 I observed 12-15 Laughing Gulls (*Larus atricilla*) soaring in a thermal above my yard in Sneads Ferry, Onslow County, North Carolina. Upon closer inspection with binoculars, I saw that these gulls were hawking, catching, and swallowing insects. Scores of prey were captured by these gulls during about fifteen minutes of close observation. On several occasions immediately after prey capture, the gulls extended their necks and opened their beaks (movements resembled regurgitation behavior). In a few instances these movements were accompanied by brief apparent distress calls.

I was unable to identify positively the species of flying insect prey the gulls were eating. However, females from a colony of ants (*Lasius neoniger* Emery) were swarming in my yard at the same time. These ants flew upward and the thermal appeared to carry them up to the gulls. I strongly suspect that the aerial prey taken by these Laughing Gulls was the swarming ants from this colony. The distress calls and regurgitation behaviors suggested that some of the gulls were bitten or received an oral dose of repellent chemicals from these ants. *Lasius* and related genera lack stingers, but possess mandibular and Dufour's glands and can spray the contents of these glands (Holldobler and Wilson 1990).

The second episode was of gulls, shorebirds and grackles feeding on swarming ants between 1600 and 1725 h on 30 May 1990 on North Topsail Beach, Onslow County, NC. On this occasion, incoming tides were washing tens of thousands of winged ants onto the beach. Some were dead, but many were still alive though apparently unable to take flight again. I counted 175 ants in a 30 cm by 7.5 cm area of the tidal driftline. The beach was similarly littered with ants for a distance of 300–400 m. I observed 3 immature Herring Gulls (*L. argentatus*), 4 Red Knots (*Calidris canutus*), 1 Willet (*Catoptrophorus semipalmatus*), about 70 Sanderlings (*Calidris alba*), and 2 Boat-tailed Grackles (*Quiscalus major*) walking among these ants and feeding on them. No distress behavior resulting from sprayed chemicals, biting, or stinging was seen in these feeding birds. Several Barn Swallow (*Hirundo rustica*) and Purple Martins (*Progne subis*) were observed flying about 0.4 m above this tidal driftline of ants. In contrast to the other species, the swallows and martins were not seen actually feeding on these ants. Several recent papers (Sealy 1982, Erskine 1984, Hobson and Sealy 1987) describe swallows ground-feeding on swarming insects (midges and mayflies). I returned to this area on 31 May, 1 June, and 3 June 1990. Only a few ants were found on those dates.

David L Stephan identified representative ants that I collected at the site. Sixty–eight (91%) were *Lasius umbratus* (Nylander) and 7 (5 males, 2 females; 9%) were *Formica* sp. Winds apparently carried these swarming ants out over the ocean, where they fell to the water when they became exhausted or when the winds diminished. Tidal currents then washed them to the beach. Insects have been caught in flight far out to sea, carried there passively by moving air masses (Johnson 1969). Ants were found in the digestive tract of a post-hatchling Loggerhead Turtle (*Caretta caretta*) collected at the edge of the Gulf Stream 75 km off St. Augustine, FL (Richardson and McGillivary 1991).

In summary, these observations of aerial feeding and ground feeding on swarming ants by gulls and shorebirds illustrate opportunistic feeding on a temporary, superabundant food source.

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CBC Rare Bird Alert
(704) 332-BIRD

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1991 unless otherwise indicated)

RED-THROATED LOON: One on Lake Townsend near Greensboro, N.C., on 9 November was carefully compared with Common Loons by Herb Hendrickson and Roger McNeill.

COMMON LOON: Ruth Young had a good mountain count of 30 on Lake Junaluska, N.C., on 11 and 12 November.

HORNED GREBE: A total of 55 on Jordan Lake in Chatham County, N.C., on 10 November (Paul Saraceni) was a notable inland count.

RED-NECKED GREBE: Always a good find, one was very rare inland on Lake Townsend near Greensboro. Henry Link, Herb Hendrickson, and others saw the bird from 9 to 17 November; it was photographed by Roger McNeill.

EARED GREBE: Eric Dean again found the species on the water treatment ponds at Goldsboro, N.C., this fall. He believes about six different birds were present from 3 September to 7 October, with the peak count of three from 4 to 7 October. The only other fall report was at North Pond on Pea Island, N.C., where Harry LeGrand and John Wright saw one on 16 November.

BLACK-CAPPED PETREL: An excellent count was 145 seen in the Gulf Stream off Oregon Inlet, N.C., on 24 August (Mike Tove party).

GREATER SHEARWATER: A good count for late August was 22 birds seen off Oregon Inlet on 24 August (Mike Tove, Harry LeGrand).

AUDUBON'S SHEARWATER: The distribution and abundance of this species during the cooler months is poorly known. Single birds were noted off Charleston, S.C., on 16 November (Dennis Forsythe) and off Beaufort Inlet, N.C., on 29 November (Harry LeGrand).

BAND-RUMPED STORM-PETREL: Two were seen off Oregon Inlet on 24 August by Mike Tove and party.

WHITE-TAILED TROPICBIRD: Two were observed by Mike Tove, Ricky Davis, and party in the Gulf Stream off Oregon Inlet on 7 September, for the only fall report.

MASKED BOOBY: This rare offshore visitor was seen at close range in the Gulf Stream off Oregon Inlet on 3 August. A subadult was entangled in a line at a fishing boat; B.J. Rose, Clay Sutton, and others observed the booby at very close range as the bird was set free.

NORTHERN GANNET: An immature seen plunge-diving into the waters at Falls Lake, Durham County, N.C., on 30 November (Leslie Todd) and 1 December (Ricky Davis) must have been an unusual sight. There are one or two far-inland records for that state, but this record appears to be the first with good details. A subadult was found dead on the beach at North Topsail Beach, N.C., on 3 September (Gilbert Grant).

AMERICAN WHITE PELICAN: The only fall reports were two at Johns Island, S.C., on 26 October (B. Stringfellow) and one at Hatteras Inlet, N.C., on 27 November (Bob Righter).

GREAT CORMORANT: An immature seen by Roger McNeill was early on 12 October at Huntington Beach SP, S.C. A locally good count of five Greats was made at Oregon Inlet on 23 November (Haven Wiley et al.).

ANHINGA: A male was seen along I-20 near the Wateree River in Kershaw County, S.C., on 9 November by Robin Carter and Caroline Eastman.

LEAST BITTERN: One seen at the extensive sand flats at Portsmouth Island, N.C., on 14 October (Steve Dinsmore) was out of habitat and was rare for the Outer Banks.

GREAT EGRET: Jeff Pippen had a good local count of 80 egrets at a partly-drained Lake Michie, Durham County, N.C., on 13 August.

TRICOLORED HERON: One was rare east of Rocky Mount, N.C., on 9 September (Ricky Davis).

REDDISH EGRET: Gene Howe and Betty Grady observed and photographed an immature at Fort Fisher, N.C., on 1 September. Rather late for North Carolina was another immature seen on 15 October by Steve Dinsmore at New Drum Inlet on Core Banks.

BLACK-CROWNED NIGHT-HERON: An unusual concentration of migrants was seven adults and an immature seen at Bunn Lake near Zebulon, N.C., by Ricky Davis on 23 September.

YELLOW-CROWNED NIGHT-HERON: An adult was seen on several dates in July at Lindley Park in Greensboro by Jeff Hole, who saw the bird capture a crayfish on one occasion. Kevin Hennings saw an immature at sewage ponds at Rock Hill, S.C., on 13 September.

GLOSSY IBIS: Always notable inland, four were observed in flight by Paul Saraceni at Kinston, N.C., on 15 September, and one was seen at Rock Hill, S.C., on 21 October by Kevin Hennings.

ROSEATE SPOONBILL: The birds seen at the Savannah spoil area in southern Jasper County, S.C., in summer remained at least to 26 October. The peak count was six spoonbills there on 17 August (Roger McNeill).

WOOD STORK: Good totals for each state, both at traditional post-breeding sites, were 31 at Sunset Beach, N.C., on 17 August (Ricky Davis) and 189 at Silver Bluff Audubon Sanctuary in Aiken County, S.C., on 12 August (Dan Connelly).

FULVOUS WHISTLING-DUCK: The only fall report was of a large flock at the spoil ponds at Eagle Island near Wilmington, N.C. Greg Massey saw 28 there on 26 September, and Sam Cooper observed 34 on 8 November.

TUNDRA SWAN: Locally rare were eight at Lake Wheeler near Raleigh, N.C., on 10 November (Jeremy Nance) and one near Pactolus in Pitt County, N.C., on 18 November (Harry LeGrand).

SNOW GOOSE: Single birds, each of the white phase, were notable on 26 October at the spoil area in Jasper County, S.C. (Robin Carter), on 31 October at a quarry in New Bern, N.C. (Rich Boyd, Bob Holmes, Wade Fuller), and on 29 November in central Carteret County, N.C. (John Fussell).

ROSS' GOOSE: Apparently a record state count was three adults seen on 25 October at Pea Island, N.C., by Steve Dinsmore, Jim Parnell, and Jeff Walters. Single birds were seen at that location as early as 20 October (Ned Brinkley) and as late as 23 November (Haven Wiley party).

EURASIAN WIGEON: This species is by no means rare on the Outer Banks in fall, as evidenced by a count of five males at North Pond on Pea Island on 8 and 9 November (Steve Dinsmore). There were numerous other fall sightings from this location, with the earliest being a male, probably just beginning to come into alternate plumage, seen at North Pond on 29 September by Mike Tove and others.

REDHEAD: Ruth Young observed small numbers on three lakes—Beaver, Junaluska, and Enka—in the Asheville, N.C., area on 11 and 12 November.

COMMON EIDER: A female seen at Huntington Beach SP, S.C., was a good find on 29 November, as noted by Dennis and Donna Forsythe, Robin Carter, and Caroline Eastman.

KING EIDER: Along the North Carolina Outer Banks, a female King was seen flying by the Cape Hatteras lighthouse on 16 November by John Wright and Harry LeGrand, and an immature male was seen flying by Coquina Beach on Bodie Island on 17 November by Ricky Davis.

HARLEQUIN DUCK: A female was seen in the surf and walking on the beach at Cape Hatteras point on 27 November by Bob Righter.

OLDSQUAW: The storm that forced down the Red-necked Grebe at Greensboro also produced a male Oldsquaw at Lake Townsend near Greensboro on 9 November (Roger McNeill, Herb Hendrickson). McNeill also saw a female at nearby Lake Brandt on 17 November. Far to the south was a female seen by George Reeves at the Savannah spoil area on 28 November.

SURF SCOTER: Always notable inland, one was surprisingly early on 24 September at the water treatment plant ponds at Goldsboro (Eric Dean); and Steve Dinsmore observed two birds on 17 November, and four birds on 19 November, at Jordan Lake.

WHITE-WINGED SCOTER: Very rare inland were an excellent five seen on 16 October at Goldsboro by Eric Dean and one seen from 1 to 16 November at the Furman University campus near Greenville, S.C., by John Batson and Peter Worthington.

COMMON GOLDENEYE: Somewhat early was a pair seen at Jordan Lake on 20 October by Paul Saraceni.

COMMON MERGANSER: The fallout of 9 November produced five female Commons at Lake Townsend near Greensboro (Roger McNeill, Herb Hendrickson).

RUDDY DUCK: Unseasonably early was a male in breeding plumage at the Savannah spoil area on 17 August (Roger McNeill) and one of unspecified sex and plumage at New Bern on 26 August (Rich Boyd, Bob Holmes).

BLACK VULTURE: Ruth Young observed large numbers migrating past Fairview, Buncombe County, N.C., during the fall, and 38 were counted by Irvin Pitts at Caesars Head SP, S.C., on 20 September. The migration status of this species is poorly known, as it is a permanent resident at most Carolina sites, though clearly there is an input of migrants into the region in fall.

AMERICAN SWALLOW-TAILED KITE: John Cely reported that an injured bird was found during the fall near Iva, Anderson County, S.C., and taken to Riverbanks Zoo in Columbia for rehabilitation.

MISSISSIPPI KITE: Somewhat late was an adult seen by Jack Peachey near Socastee, Horry County, S.C., on 12 October.

NORTHERN HARRIER: Robin Carter and Caroline Eastman saw one on 10 August at the Bear Island WMA, S.C. The species is not known to breed at present in that state, and perhaps this was an early migrant.

SHARP-SHINNED HAWK: James and Elizabeth Pullman had a pair in their yard in southern Durham County, N.C., during the summer, being seen on nine dates from 21 May to 20 July.

BROAD-WINGED HAWK: Excellent counts were noted by several observers along and near the Blue Ridge escarpment. Toby Gordon and party counted 984 flying over Pilot Mountain SP, N.C., on 20 September; Irvin Pitts counted 2827 flying over Caesars Head SP, S.C., on 20 September and 845 there on the following day; and Simon Thompson counted 953 flying over Bird Mountain near Landrum, S.C., on 20 September and 1081 flying over Chimney Rock Park, N.C., on 22 September. Rare along the coast was one seen by Todd Hass and Roger McNeill at Sunset Beach, N.C., on 17 October.

ROUGH-LEGGED HAWK: One was a very good find in Gates County, N.C., where Steve Dinsmore saw a light-phase hawk on 29 November.

MERLIN: Inland sightings, all in North Carolina, were made on 20 September at Zebulon (Ricky Davis), on 20 September at Carrboro (Paul Saraceni), on 18 October near Goldsboro (Eric Dean), and on 22 October near Goldsboro (Gene Howe).

PEREGRINE FALCON: This species continues to increase as a fall migrant, and inland birds were seen on 7 September at Roan Mountain, N.C. (Rick Knight), on four dates in September at Pilot Mountain SP, N.C. (Toby Gordon, Doug Shadwick), on 19 September at Landrum, S.C. (Simon Thompson), and on 27 October at Goldsboro (Eric Dean).

YELLOW RAIL: Sam Cooper flushed one from marsh grasses at Eagle Island near Wilmington on 20 October. Robin Carter heard one in response to nocturnal rock clicking near Gadsden, S.C., on 19 and 26 October.

CLAPPER RAIL: This species migrates, at least sparingly, over inland parts of the Carolinas at night but is usually found as a migration casualty at TV towers or skyscrapers. One such bird was found dazed in a parking lot on 14 October in Goldsboro; Eric Dean identified the rail.

SANDHILL CRANE: Two were seen at the Open Grounds Farm in central Carteret County, N.C., in the spring of 1989 by one of the owners (fide John Fussell). One was seen in fall (1991) in a drained Carolina bay just north of Marion, S.C., by Charles McRae.

BLACK-BELLIED PLOVER: Quite late for the interior was one seen on 12 November by Paul Saraceni at Jordan Lake.

LESSER GOLDEN-PLOVER: There were numerous reports from the region this season, with good totals being seven at Falls Lake, N.C., on 15 September (Ricky Davis), seven at the Cherry Hospital grounds near Goldsboro on the same date (Eric Dean), and five at the Orangeburg, S.C., sod farms from 20 to 26 November (Robin Carter, Dennis Forsythe). Other birds were reported from Corolla, Cape Hatteras point, Portsmouth Island, and Wilmington along the North Carolina coast, and inland at Beaverdam Reservoir in northern Wake County, N.C.

SEMIPALMATED PLOVER: One was late on 20 October at Lake Townsend near Greensboro (Herb Hendrickson).

BLACK-NECKED STILT: An outstanding Carolina count was 600 stilts noted by Robin Carter and Caroline Eastman at the Savannah spoil area on 8 September.

AMERICAN AVOCET: Fred Garrett and Herb Hendrickson noted a very rare inland bird at Lake Townsend near Greensboro on 2 August. Another was locally rare at a spoil pond along the Morehead City - Beaufort, N.C., causeway on 6 September (Bob Holmes).

WILLET: Steve Dinsmore had a good count of 490 Willets at Oregon Inlet on 29 September.

UPLAND SANDPIPER: The peak count at the Orangeburg sod farms, S.C., was at least ten birds on 10 August (Tim Kalbach).

LONG-BILLED CURLEW: The traditional curlew at Fort Fisher, N.C., was first noted on 2 September, by Betty Grady and Gene Howe. A good total of five was seen at Cape Romain NWR, S.C., on 13 October by J. Cox.

HUDSONIAN GODWIT: Very rare in South Carolina, one was carefully studied by many birders at Huntington Beach SP from 11 November to the end of the month. It was first noted by Nathan Dias and later seen by Bill Pulliam, Robin Carter, and others. Unusual away from the coast was one seen on the late date of 17 November at Mattamuskeet NWR, N.C., by Harry LeGrand and John Wright. There were just a few reports from the Pea Island vicinity, where regular each fall.

RUDDY TURNSTONE: The only inland report was four seen by Ricky Davis at Falls Lake on 15 September.

SANDERLING: This species migrates through inland parts of the Carolinas mainly in September, when Paul Saraceni had a good total of 15 at Jordan Lake on the 22nd of that month.

WESTERN SANDPIPER: About a month late at an inland site was one on 10 November at Jordan Lake (Paul Saraceni).

WHITE-RUMPED SANDPIPER: Rare inland were one on 25 August and eight on 7 September at Orangeburg (Robin Carter), one at Goldsboro on 5 September (Gene Howe), and one at Jordan Lake on 12 November (Paul Saraceni). Sam Cooper and Greg Massey observed five late birds at Eagle Island on 17 November.

BAIRD'S SANDPIPER: Single birds were seen inland in North Carolina north of Charlotte from 16 to 20 August (David Wright), at Goldsboro on 21 August (Eric Dean), at Lake Michie near Durham on 31 August (Todd Hass, Roger McNeill, et al.), near New Bern on 2 September (Rich Boyd), and at Jordan Lake on 20 October (Paul Saraceni). In addition to a few on the Outer Banks, a juvenile was extremely late at Eagle Island on 17 November, as studied by Sam Cooper and Greg Massey.

PECTORAL SANDPIPER: An excellent count was 220 observed by Tim Kalbach and Robin Carter at sod farms near Orangeburg on 16 August. Late Pectorals included one on 25 and 26 November at Orangeburg (Dennis Forsythe) and one at New Bern on 2 December (Bob Holmes).

DUNLIN: An excellent inland count was 86 seen at Falls Lake and adjacent Beaverdam Reservoir on 3 November by Harry LeGrand. Elsewhere inland, the next highest total was just four birds, in the Charlotte area on 9 November (Taylor Piephoff).

CURLEW SANDPIPER: A juvenile was a good find by Harry LeGrand and Steve Dinsmore at North Pond on Pea Island on 27 September. Dozens of Carolina Bird Club members saw the bird over the next two days.

STILT SANDPIPER: Rather late were single birds seen at New Bern on 31 October (Rich Boyd party), at Lake Mattamuskeet on 9 November (Steve Dinsmore), and at the Savannah spoil area on 28 November (George Reeves).

BUFF-BREASTED SANDPIPER: At the Orangeburg sod farms, the species was noted from 3 September to 15 October, with a peak count of eight there on 21 September, as seen by Robin Carter. Others inland were three seen by Ricky Davis at Falls Lake on 15 September and one seen by Gene Howe near Goldsboro on 30 and 31 August. Notable near the coast were three seen in a spoil pond along the Morehead City - Beaufort causeway on 6 September (Bob Holmes) and one on the University of North Carolina - Wilmington athletic fields on 23 September (Sam Cooper).

RUFF: The only fall report was a female or immature seen at the Savannah spoil area on 13 October by Roger Clark, Kevin Calhoon, and Bruce Smart.

WILSON'S PHALAROPE: The species was poorly represented along the coast this fall, with a few at Pea Island and one at the Savannah spoil area on 4 August (Robin Carter, Caroline Eastman) the only ones reported. Very rare inland were one seen by Eric Dean at Goldsboro on 11 August and by Ricky Davis at Falls Lake on 15 September.

RED-NECKED PHALAROPE: The only onshore report for the season was one observed by Harry LeGrand and others at New Field on Pea Island on 21 and 22 September.

RED PHALAROPE: Normally much rarer than the other two phalaropes inland, this species was noted inland in North Carolina on three occasions. One was observed by Todd Hass, Herb Hendrickson, and others at Lake Hamilton in Greensboro from 28 September to 2 October; Roger McNeill photographed this individual. Mike Tove saw one at nearby Lake Townsend on 18 November, and Eric Dean noted another on 30 September swimming with ducks at the Goldsboro water treatment ponds. The best offshore count was 40 seen by Harry LeGrand off Beaufort Inlet on 29 November.

PARASITIC JAEGER: Extremely rare inland was an immature carefully studied by Steve Dinsmore at Jordan Lake on 17 November and again on 27 November and 3 December by Paul Saraceni.

LAUGHING GULL: A strong storm along the coast on 9 and 10 November brought considerable numbers of this species inland. On the latter date, ten were seen by Eric Dean at Goldsboro, nine were seen by Paul Saraceni at Jordan Lake, and one was seen by Taylor Piephoff in Mecklenburg County, N.C. Saraceni saw another Laughing Gull at Jordan Lake on 26 October and 2 November.

LITTLE GULL: Rare and unusually early were an immature carefully observed by John Fussell and Jim O'Donnell at Cape Lookout, N.C., on 20

September and an adult seen by Peter Worthington over the surf at Nags Head, N.C., on 27 September.

COMMON BLACK-HEADED GULL: The individual that has wintered for several years at Morehead City was first noted this fall on 8 October by Paul Saraceni.

RING-BILLED GULL: Bob Wood noted one late gull at Lake Wateree, S.C., on 16 June.

LESSER BLACK-BACKED GULL: Rare for South Carolina was one seen at Huntington Beach SP on 3 November by Jack Peachey and Perry Nugent. The earliest of a handful of coastal North Carolina reports was one seen on 29 September at Cape Hatteras point (Ricky Davis, John Wright).

BLACK-LEGGED KITTIWAKE: Single birds were seen on pelagic trips off Beaufort Inlet on 28 November by John Wright and on 30 November by Russ Tyndall.

ROSEATE TERN: Two adults were noted by Mike Tove and Harry LeGrand at Cape Hatteras point on 25 August, and another adult was seen at Cape Lookout on 20 September by John Fussell and Jim O'Donnell.

COMMON TERN: This species typically has departed the Carolinas by the end of October; thus, notably late were three seen about 40 miles off Charleston on 16 November (Dennis Forsythe) and one seen at Cape Hatteras point on the same date (Ricky Davis). Eric Dean had a good inland count of 18 Commons at Goldsboro on 24 September.

FORSTER'S TERN: Ricky Davis observed a high inland total of 21 Forster's, along with three Commons, at Falls Lake on 1 September. A tern seen at a great distance at Greensboro on the very late date of 9 November was thought to have been this species by Herb Hendrickson and Roger McNeill.

BRIDLED TERN: The best offshore count for the season was 31 tallied by Mike Tove and party off Oregon Inlet on 24 August.

SOOTY TERN: Onshore reports for the season were an excellent five seen by Russ Tyndall at Cape Hatteras point on 25 August and one seen in Carteret County, N.C., by Rich Boyd and Ken Wilkins on 19 August (a day after passage of Hurricane Bob). The peak offshore count was just four birds, seen by Mike Tove and party off Oregon Inlet on 7 September.

BLACK TERN: Eric Dean had a good inland count of 12 birds at Goldsboro on 5 September.

BLACK-BILLED CUCKOO: This rare migrant was noted in North Carolina only twice: at Tryon on 9 October (Simon Thompson) and at Ocracoke Island on 28 September (Harry LeGrand, Peter Worthington, and others). Lex Glover banded one near Mayesville, S.C., on 23 October, and others were seen in that state on 11 September at the Victoria Bluff Preserve in Beaufort County (John Cely) and on 7 October at Mount Pleasant (Dennis Forsythe, Donna Forsythe).

SHORT-EARED OWL: Rather rare for South Carolina was one seen at Huntington Beach SP on 3 November by Robin Carter and Caroline Eastman.

WHIP-POOR-WILL: Three were noted by Dennis and Donna Forsythe at James Island, S.C., on 27 to 29 September.

OLIVE-SIDED FLYCATCHER: Always of note in the Carolinas, single individuals were observed on 21 September at Charlotte (fide Taylor Piephoff) and on 5 October at the Broad River WMA in Fairfield County, S.C. (Peter Worthington).

YELLOW-BELLIED FLYCATCHER: Individuals of this elusive migrant were found in North Carolina at Eagle Island on 22 September (Greg Massey), at Pea Island on 27 September (Taylor Piephoff) and on 7 October (Jeremy Nance), and at Carolina Beach SP on 28 September (Sam Cooper). The only reports for South Carolina were birds banded by Lex Glover near Mayesville on 13 September and 1 October.

WILLOW FLYCATCHER: Ricky Davis saw and heard one calling at Pea Island on 8 October.

LEAST FLYCATCHER: Ricky Davis saw and heard a calling bird on Roanoke Island, N.C., on 28 September, as did Jeff and Anne Pippen at Pea Island on 10 October. Bill Hilton Jr. banded and measured two Leasts on the surprisingly early date of 17 August at York, S.C.

SAY'S PHOEBE: An individual photographed near the pony pens at Ocracoke Island on 11 October by Hugh McFadden was just the third record for North Carolina.

WESTERN KINGBIRD: Single birds were seen along the North Carolina coast at Sneads Ferry on 14 October (Gilbert Grant) and at Salvo from 15 to 17 November (Russ Tyndall et al.); two were seen at Pea Island on 27 September by Ricky Davis. Single birds were noted along the South Carolina coast at Mount Pleasant on 7 October (Dennis Forsythe) and at Huntington Beach SP on 24 November (Anson Cooke party).

GRAY KINGBIRD: This very rare visitor was observed on 2 October at Morehead City by John Fussell.

SCISSOR-TAILED FLYCATCHER: Always notable were single migrants seen by Butch Pearce and Brian Patteson on 18 and 19 August at Mackay Island NWR, N.C., and by Rad Mayfield on 16 November several miles north of Cheraw, S.C.

HORNED LARK: A good count for central South Carolina was 30 birds, as noted by Dennis and Donna Forsythe on 28 September at the Orangeburg sod farms.

BANK SWALLOW: Eric Dean had an excellent count of at least 1500 Banks on 27 August near Goldsboro.

COMMON RAVEN: Three were seen on 4 August at Chimney Rock Park, N.C., by Simon Thompson. Birds were noted there on a number of occasions earlier in the year, but no evidence of nesting was reported.

SEDGE WREN: Completely surprising was one seen singing in a wet field with pine saplings in the Wambaw District of the Francis Marion NF, S.C., on 1 August (Peter Yaukey, Barny Dunning). The species is not known to breed in the Carolinas, and the bird was likely not breeding in that area.

EASTERN BLUEBIRD: Very rare on the Outer Banks was a male seen by Steve Dinsmore at Pea Island on 22 November.

SPRAGUE'S PIPIT: Rick Knight observed one on the ground, and he flushed the bird to hear the call, on Round Bald at Roan Mountain, N.C., on 27 October. There are only several previous state records. Full details have been submitted to *The Migrant*.

SOLITARY VIREO: Robin Carter noted one singing in his yard in Columbia, S.C., on 13 August. He believes the bird was an early migrant.

WARBLING VIREO: This very rare fall migrant was noted only by Peter Worthington, who saw one at Simpsonville, S.C., on 9 September.

PHILADELPHIA VIREO: Single birds were encountered in North Carolina near Greensboro on 22 September (Eric Dean); at Buxton (Harry LeGrand), Corolla (John Fussell party), and Roanoke Island (Ricky Davis) on 28 September; at Bodie Island on 7 October (Jeremy Nance); at Pea Island on 8 October (Davis); and at Tryon on 9 October (Simon Thompson). The only report from South Carolina was one seen on 22 September at Congaree NM by Dennis Forsythe and others.

BLUE-WINGED WARBLER: Infrequently reported from the coast were two birds seen at Folly Beach, S.C., on 7 October by Dennis Forsythe.

GOLDEN-WINGED WARBLER: Lex Glover banded four birds near Mayesville during the fall, with one on 30 August and three on 18 and 19 September.

TENNESSEE WARBLER: Dennis Forsythe had a good coastal count of five Tennessees at Mount Pleasant on 7 October.

ORANGE-CROWNED WARBLER: The only inland count of more than a single bird was two seen by Todd Hass at Chapel Hill, N.C., on 3 November.

NASHVILLE WARBLER: One was somewhat early on 31 August at Chapel Hill (Todd Hass, Roger McNeill). Rare along the South Carolina coast was one seen by Dennis and Donna Forsythe at Mount Pleasant on 5 October.

CERULEAN WARBLER: This easily overlooked migrant was seen at Charlotte by Taylor Piephoff, who saw two immatures on 18 August.

WORM-EATING WARBLER: Seldom reported after September, one was notable on 13 October at the Broad River WMA, Fairfield County, S.C. (Tim Kalbach).

NORTHERN WATERTHRUSH: Bob Holmes observed a late migrant at New Bern from 21 October to 5 November.

CONNECTICUT WARBLER: This rare and elusive migrant was encountered only twice during the fall: at Mount Pleasant on 21 September (Dennis and Donna Forsythe) and at Manteo, N.C., on 29 September (Henry Haberyan).

MOURNING WARBLER: This very rare migrant was seen in August in Greensboro (Roger McNeill, Henry Link), on 4 September at Charlotte (Taylor Piephoff), and on 2 September near Mayesville (banded by Lex Glover).

WILSON'S WARBLER: Taylor Piephoff and others saw at least three Wilson's on the Outer Banks from Pea Island to Buxton on 27 and 28 September. Somewhat early was one seen by Ruth Young at Fairview, Buncombe County, N.C., on 2 September.

CANADA WARBLER: Very rare along the coast were single birds seen at Pawleys Island, S.C., on 7 October (Tom and Ann Hankins) and at Pea Island on 8 October (Ricky Davis).

YELLOW-BREASTED CHAT: Quite late was one seen on 23 November in southern Halifax County, N.C., by Debbie Scruggs.

WESTERN TANAGER: Russell Rogers observed one at Asheville, N.C., on 25 September; however, no details on sex or plumage were received.

ROSE-BREASTED GROSBEAK: A male, still with some rose on the breast, was quite late in departing on 10 November, when seen by Steve Hall and Mike Schultz in southwestern Durham County, N.C.

INDIGO BUNTING: Rather late was a bunting seen on 14 November at Huntington Beach SP by Lex Glover, Evelyn Dabbs, and party.

DICKCISSEL: Again this fall, the only individuals of the species reported were fly-overs on the Outer Banks, where Ricky Davis noted three on 8 October at Pea Island.

CLAY-COLORED SPARROW: This species is either increasing as a migrant, or observers are becoming more adept at finding these sparrows. Inland, one was seen on 13 October at the Broad River WMA, S.C., by Tim Kalbach, and one was seen just west of Lake Phelps, N.C., on 27 October by Ricky Davis. Along the coast, at least two were seen by dozens of Carolina Bird Club members at the northern end of Pea Island from 27 to 29 September; one was at North Pond at Pea Island on 10 October (Jeff and Anne Pippen); one was at Portsmouth Island, N.C., on 14 October (Steve Dinsmore); one was at Eagle Island near Wilmington from 18 to 20 October (Greg Massey, Sam Cooper); and one was at Folly Beach, S.C., on 7 October (Dennis Forsythe).

LARK SPARROW: This declining species was noted inland at Charlotte on 16 August by Taylor Piephoff and near Goldsboro on 6 October by Eric Dean. Two were seen at Pea Island from 27 to 29 September by Carolina Bird Club members, one was seen at Eagle Island on 20 October by Sam Cooper, and one was seen at Bennett's Point in Colleton County, S.C., from 24 to 28 November by Sam Breyshaw and others.

HENSLOW'S SPARROW: Allen Bryan found two birds in a recent clearcut about five miles east of Edenton, N.C., on 29 November; and Sam Breyshaw observed two more in a powerline clearing in western Beaufort County, S.C., on 17 November.

LE CONTE'S SPARROW: Allen Bryan observed one in the Henslow's Sparrow field east of Edenton on 29 November, and another was noted by Doug Shadwick on 27 October at Arrowhead Lake in Anson County, N.C.

LINCOLN'S SPARROW: This is a secretive sparrow, but certainly more common in the Carolinas in fall and winter than the previous two species. Eric Dean saw five Lincoln's from the driver's seat of his truck while birding along brushpiles south of LaGrange, N.C., on 27 October. Single birds were observed in North Carolina at Pea Island on 8 October (Ricky Davis), at Fort Fisher on 8 October (Sam Cooper), at Eagle Island on 20 October (Cooper), in southern Mecklenburg County on 2 November (Kevin Hennings), and at New Bern on 18 November (Wade Fuller, Bob Holmes). The only report from South Carolina was one seen by Simon Thompson in the Pacolet Valley near Landrum on 10 November.

LAPLAND LONGSPUR: Always notable in South Carolina, one was heard calling by Robin Carter at the Orangeburg sod farms on 27 October, two were seen by Simon Thompson near Landrum on 10 November, and three were seen at Huntington Beach SP from 24 to 29 November by Charles McRae and others. The only report for North Carolina was two heard calling just west of Lake Phelps on 16 November (Harry LeGrand).

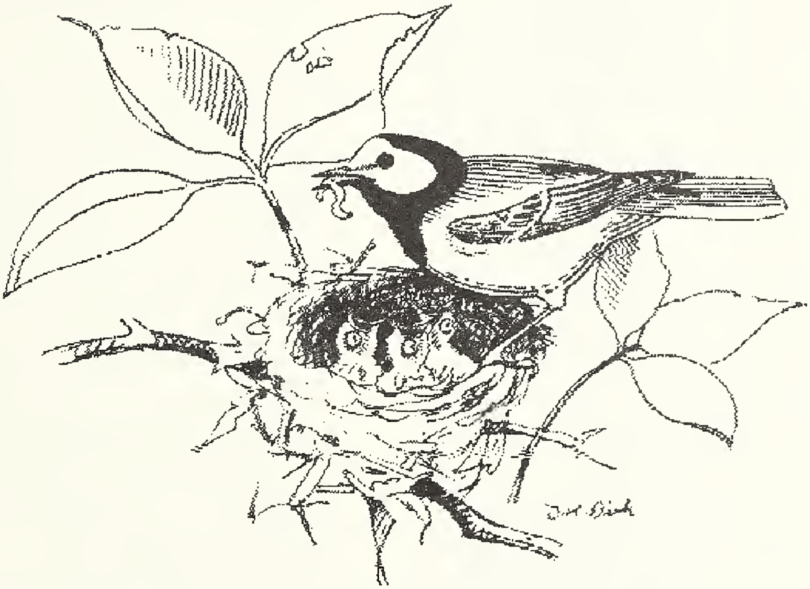
SNOW BUNTING: Single birds were seen along the North Carolina coast at New River Inlet on 26 October (John Fussell), at Fort Macon SP on 30 October (Randall Newman), and at Wrightsville Beach on 10 November (Sam Cooper).

YELLOW-HEADED BLACKBIRD: The only fall migrant was, as expected, on the Outer Banks, where one was seen at Pea Island on 8 September by Mike Tove and party.

BREWER'S BLACKBIRD: This species is always of interest in North Carolina, where its wintering status is poorly known. At an apparently regular wintering site, two females were noted in central Carteret County on 29 November by John Fussell, John Wright, and Paula Wright. Ricky Davis saw five females at the former First Colony Farms west of Lake Phelps on 27 October, and a male was found dead just south of Raleigh on 6 November by James and Elizabeth Pullman.

SHINY COWBIRD: The third record for North Carolina was provided by Philip Crutchfield, who carefully studied four males in a large group of Brown-headed Cowbirds at a shopping center in Fayetteville on 30 October.

ORCHARD ORIOLE: Bob Holmes, Rich Boyd, and Wade Fuller noted one on the late date of 31 October at New Bern.



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The Chat

(USPS 101-020)

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THE CHAT

(USPS 101-020)

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CBC

1992 North American Migration Day Count in South Carolina

ROBIN M. CARTER

In January 1991, Jim Stasz of North Beach, Maryland, who has been involved in the Maryland Ornithological Society's May Count for many years, decided that he would instigate a continent-wide version of this count, to be called the North American Migration Day Count. This count would be held on the second Saturday in May throughout North America, and thus would attempt to provide a snapshot of the migration on one particular day each spring.

The North American Migration Day Count (NAMDC) is similar to the Christmas Bird Count or the Carolina Bird Club Spring Count, but there are a few major differences. The basic unit of the NAMDC is the county (or Louisiana parish), rather than a 15 mile diameter circle, and the NAMDC is held on a single day — the second Saturday in May.

Unlike Christmas Bird Counts, the NAMDC keeps four different lists—the Regular list (counting in the field), Feeder Watch list (for counting at a bird feeder), Stationary list (for a one location count, such as a hawk watch) and Night list (for nocturnal birding).

Even though the 1992 NAMDC was organized at the last minute, there were counts taken in 38 states and in one province of Canada. The 1993 NAMDC count (which will be held on Saturday, 8 May 1993) promises to be even bigger. For more information about the 1993 NAMDC write Jim Stasz, P.O. Box 71, North Beach, MD 20714. There was no fee for participation in the 1992 count, and (as yet) no fee is planned for the 1993 count.

In 1992 six counts were conducted in South Carolina—four were large-scale cooperative counts (in Charleston, Jasper, Oconee, and Richland Counties), while two other counts were single observer counts. In all, in 1992, 205 species and approximately 31,979 individuals were observed by 46 observers in 27 parties. Total party-miles (non-owling) were 1487.5; total party-hours (non-owling) were 210. Good to excellent details were submitted for almost all rarities. The totals given in the following accounts are for all types of list. Nocturnal list totals are given in parentheses, but the nocturnal counts are included in the total count. For example Swainson's Thrush 6 (1) means there were six Swainson's Thrushes counted in all—one at night and five in the daytime (i.e. the Regular list). In 1992 there were no Feeder Watch or Stationary lists submitted for any South Carolina count.

1992 NAMDC in South Carolina, 9 May 1992

Charleston County, SC. 6:30 AM to 7:00 PM. Observers: 10 in field in 7 parties (non-owling). Total (non-owling) party-hours 54; party-miles 281; 20 hours and 23 miles on foot, 34 hours and 247 miles by car.

Pied-billed Grebe 2; Horned Grebe 2; Brown Pelican 163; Double-crested Cormorant 147; Anhinga 47; Least Bittern 17; Great Blue Heron 32; Great Egret 59; Snowy Egret 51; Little Blue Heron 20; Tricolored Heron 13; Cattle Egret 48; Green-backed Heron 25; Black-crowned Night-Heron 3; Yellow-crowned Night-Heron 1; White Ibis 1; Glossy Ibis 10; Wood Stork 2; Canada

Goose 2; Wood Duck 46; Mallard 4; Red-breasted Merganser 18; Black Vulture 4; Turkey Vulture 17; Osprey 8; Am. Swallow-tailed Kite 2; Mississippi Kite 1; Bald Eagle 1 (u); No. Harrier 1; Red-shouldered Hawk 9; Red-tailed Hawk 7; Wild Turkey 6; No. Bobwhite 8; Clapper Rail 24; King Rail 1; Virginia Rail 1; Sora 1; Com. Moorhen 24; Black-bellied Plover 59; Wilson's Plover 34; Semipalmated Plover 260; Killdeer 22; Am. Oystercatcher 2; Black-necked Stilt 2; Greater Yellowlegs 18; Lesser Yellowlegs 2; Solitary Sandpiper 21; Willet 39; Spotted Sandpiper 19; Whimbrel 50; Ruddy Turnstone 99; Red Knot **10,002**; Sanderling 160; Semipalmated Sandpiper 53; Least Sandpiper 91; Pectoral Sandpiper 2; Dunlin 398; Stilt Sandpiper 1; Short-billed Dowitcher 78; Laughing Gull 187; Ring-billed Gull 76; Herring Gull 3; Gull-billed Tern 6; Caspian Tern 1; Royal Tern 460; Sandwich Tern 75; Com. Tern 1; Forster's Tern 19; Least Tern 289; Black Skimmer 62; Rock Dove 150; Mourning Dove 83; Black-billed Cuckoo 1; Yellow-billed Cuckoo 11; E. Screech-Owl 2; Great Horned Owl 1; Barred Owl 6; Com. Nighthawk 2; Chuck-will's-widow 7; Whip-poor-will 1; ChimneySwift 410; Ruby-throated Hummingbird 4; Belted Kingfisher 4; Red-headed Woodpecker 29; Red-bellied Woodpecker 43; Downy Woodpecker 10; Red-cockaded Woodpecker 5; No. (Yel.-sh.) Flicker 1; Pileated Woodpecker 20; E. Wood-Pewee 18; Acadian Flycatcher 14; **Willow Flycatcher 1**; Great Crested Flycatcher 76; E. Kingbird 22; Purple Martin 73; Tree Swallow 58; No. Rough-winged Swallow 42; Bank Swallow 1; Barn Swallow 181; Blue Jay 27; Am. Crow 32; Fish Crow 12; Carolina Chickadee 58; Tufted Titmouse 35; White-breasted Nuthatch 8; Brown-headed Nuthatch 13; Carolina Wren 96; Sedge Wren 5; Marsh Wren 76; Blue-gray Gnatcatcher 97; E. Bluebird 29; Wood Thrush 21; Am. Robin 6; Gray Catbird 11; No. Mockingbird 86; Brown Thrasher 23; Cedar Waxwing 383; Loggerhead Shrike 3; Eur. Starling 156; White-eyed Vireo 76; Yellow-throated Vireo 43; Red-eyed Vireo 80; No. Parula 106; Yellow-rumped (Myrtle) Warbler 8; Black-throated Green Warbler 2; Yellow-throated Warbler 41; Pine Warbler 85; Prairie Warbler 8; Black-and-white Warbler 1; Prothonotary Warbler 23; Worm-eating Warbler 1; Swainson's Warbler 1; Ovenbird 6; Kentucky Warbler 4; Com. Yellowthroat 184; Hooded Warbler 11; Yellow-breasted Chat 13; Summer Tanager 87; No. Cardinal 182; Blue Grosbeak 9; Indigo Bunting 13; Painted Bunting 38; Rufous-sided Towhee 13; Bachman's Sparrow 10; Chipping Sparrow 1; White-throated Sparrow 1; Bobolink 350; Red-winged Blackbird 296; E. Meadowlark 2; Boat-tailed Grackle 448; Com. Grackle 339; Brown-headed Cowbird 71; Orchard Oriole 154; No. (Baltimore) Oriole 1; Am. Goldfinch 2; House Sparrow 25.

Total 156 species, 18,454 individuals.

Participants: Coordinator—Perry Nugent, 2260 Dallerton Circle, Charleston, SC 29414; M. Aldenderfer, Edward Conradi, George Crumley, Stacia Hendrix, Anne Knight, Susan Mosante, Richard Murray, Perry Nugent, Anne Peterson, Russ Thompson.

Chester County, SC. 2:00 PM to 7:30 PM. Observers: 2 in field in 1 party (non-owling). Total (non-owling) party-hours 5.5; party-miles 46; 2.5 hours and 1 mile on foot, 3 hours and 45 miles by car.

Horned Grebe 1; Double-crested Cormorant 2, Great Blue Heron 1; Cattle Egret 12; Canada Goose 3; Mallard 1; Black Vulture 2; Turkey Vulture

6; Wild Turkey 1; No. Bobwhite 5; Killdeer 3; Spotted Sandpiper 4; Rock Dove 10; Mourning Dove 8; Yellow-billed Cuckoo 1; Barn Owl 1; Chimney Swift 10; Belted Kingfisher 2; Downy Woodpecker 2; No. (Yel.-sh.) Flicker 1; Pileated Woodpecker 1; E. Phoebe 2; Purple Martin 10; No. Rough-winged Swallow 10; Barn Swallow 30; Am. Crow 10; Tufted Titmouse 2; Carolina Wren 4; E. Bluebird 3; Swainson's Thrush 1; Am. Robin 10; Gray Catbird 2; No. Mockingbird 5; Brown Thrasher 3; Eur. Starling 10; No. Parula 2; Yellow Warbler 1; Yellow-rumped (Myrtle) Warbler 5; Pine Warbler 3; Prothonotary Warbler 1; Com. Yellowthroat 5; Yellow-breasted Chat 2; No. Cardinal 10; Blue Grosbeak 1; Indigo Bunting 3; Rufous-sided Towhee 2; Chipping Sparrow 6; Field Sparrow 3; Grasshopper Sparrow 1; Red-winged Blackbird 15; E. Meadowlark 5; Com. Grackle 6; Brown-headed Cowbird 2; Orchard Oriole 1; House Finch 10; Am. Goldfinch 3; House Sparrow 12.

Total 56 species, 278 individuals.

Participants: Albert Conway, June Conway.

Jasper County, SC. 6:30 AM to 5:00 PM. Observers: 16 in field in 7 parties (non-owling). Total (non-owling) party-hours 53.75; party-miles 127.5; 34 hours and 24.5 miles on foot, 10.25 hours and 55.5 miles by car, 9.5 hours and 47.5 miles by boat.

Brown Pelican 301; Double-crested Cormorant 811; Anhinga 27; Least Bittern 10; Great Blue Heron 37; Great Egret 140; Snowy Egret 88; Little Blue Heron 14; Tricolored Heron 20; Cattle Egret 108; Green-backed Heron 18; Black-crowned Night-Heron 15; Yellow-crowned Night-Heron 7; White Ibis 26; Wood Duck 30; Am. Black Duck 6; Mottled Duck 26; Blue-winged Teal 3; **Surf Scoter 2**; Red-breasted Merganser 1; Black Vulture 15; Turkey Vulture 76; Osprey 14; Am. Swallow-tailed Kite 2; Mississippi Kite 11; Bald Eagle 6, (a) 4, (i) 2; No. Harrier 1; Sharp-shinned Hawk 2; Red-shouldered Hawk 5; Red-tailed Hawk 14; Wild Turkey 1; No. Bobwhite 12; Clapper Rail 7; Purple Gallinule 4; Com. Moorhen 65; Black-bellied Plover 5; Wilson's Plover 8; Semipalmated Plover 25; Killdeer 27; Black-necked Stilt 145; Greater Yellowlegs 8; Lesser Yellowlegs 101; Solitary Sandpiper 7; Willet 12; Spotted Sandpiper 28; Ruddy Turnstone 40; Semipalmated Sandpiper 150; Western Sandpiper 255; Least Sandpiper 276; Dunlin 23; Stilt Sandpiper 27; Short-billed Dowitcher 19; Com. Snipe 1; Laughing Gull 27; Ring-billed Gull 266; Herring Gull 30; Great Black-backed Gull 3; Caspian Tern 28; Royal Tern 92; Forster's Tern 31; Least Tern 413; Black Skimmer 4; Rock Dove 2; Mourning Dove 57; Com. Ground-Dove 2; Black-billed Cuckoo 2; Yellow-billed Cuckoo 4; E. Screech-Owl 1; Great Horned Owl 1; Com. Nighthawk 35; Chimney Swift 82; Ruby-throated Hummingbird 1; Belted Kingfisher 13; Red-headed Woodpecker 4; Red-bellied Woodpecker 30; Downy Woodpecker 1; Hairy Woodpecker 3; No. (Yel.-sh.) Flicker 3; Pileated Woodpecker 19; E. Wood-Pewee 17; Acadian Flycatcher 1; Great Crested Flycatcher 43; E. Kingbird 52; Purple Martin 21; Tree Swallow 308; Bank Swallow 1; Barn Swallow 228; Blue Jay 24; Am. Crow 28; Fish Crow 40; Carolina Chickadee 15; Tufted Titmouse 31; White-breasted Nuthatch 3; Brown-headed Nuthatch 3; Carolina Wren 27; House Wren 1; Marsh Wren 10; Blue-gray Gnatcatcher 23; E. Bluebird 10; Wood Thrush 3; Am. Robin 2; Gray Catbird 32; No. Mockingbird 42; Brown Thrasher 44; Cedar Waxwing 8; Loggerhead Shrike 2; Eur. Starling 21; White-eyed

Vireo 17; Red-eyed Vireo 20; No. Parula 51; Yellow Warbler 7; Magnolia Warbler 1; Black-throated Blue Warbler 9; Yellow-rumped (Myrtle) Warbler 3; Yellow-throated Warbler 13; Pine Warbler 16; Prairie Warbler 1; Blackpoll Warbler 2; Black-and-white Warbler 18; Am. Redstart 15; Prothonotary Warbler 3; Ovenbird 1; No. Waterthrush 3; Com.Yellowthroat 57; Hooded Warbler 1; Yellow-breasted Chat 1; Summer Tanager 25; No. Cardinal 56; Rose-breasted Grosbeak 1; **Black-headed Grosbeak 1** (details to SC-BRC); Blue Grosbeak 7; Indigo Bunting 5; Painted Bunting 6; Rufous-sided Towhee 21; Savannah Sparrow 31; Swamp Sparrow 6; Bobolink 453; Red-winged Blackbird 450; E. Meadowlark 4; Boat-tailed Grackle 212; Com. Grackle 4; Brown-headed Cowbird 11; Orchard Oriole 15; Am. Goldfinch 2. (Excellent details for all bold-faced species)

Total 145 species, 6825 individuals.

Participants: Coordinator— Pat Metz, U.S. Fish and Wildlife Service, P.O. Box 8487, Savannah, GA 31412; Sam Brayshaw, Vic Carpenter, Graham Dugas, John Fulton, Bruce Lombardo, Barry Lowes, Pat Metz, Mark Musaus, Robin North, Ray Porter, Grant Simmons, Tom Smith, Harry South, John Stafford, Janet Throne, Jim Throne.

Lexington County, SC. 7:30 AM to 8:00 PM. Observers: 1 in field in 1 party (non-owling). Total (non-owling) party-hours 2.25; party-miles 7; 1.75 hours and 1 mile on foot, 0.5 hours and 6 miles by car.

Turkey Vulture 1; Red-tailed Hawk 1; Killdeer 2; Rock Dove 5; Mourning Dove 3; Whip-poor-will 1; Chimney Swift 3; Red-headed Woodpecker 1; Downy Woodpecker 1; E. Phoebe 1; Great Crested Flycatcher 1; E. Kingbird 1; Purple Martin 3; No. Rough-winged Swallow 2; Blue Jay 5; Am. Crow 10; Carolina Chickadee 3; Tufted Titmouse 4; Brown-headed Nuthatch 2; Carolina Wren 2; E. Bluebird 1; Am. Robin 2; No. Mockingbird 1; Brown Thrasher 1; Eur. Starling 4; Solitary Vireo 1; Red-eyed Vireo 1; Yellow-rumped (Myrtle) Warbler 1; Pine Warbler 4; Black-and-white Warbler 1; Am. Redstart 2; Summer Tanager 5; Scarlet Tanager 1; No. Cardinal 12; Indigo Bunting 3; Rufous-sided Towhee 4; Chipping Sparrow 6; Song Sparrow 1; White-throated Sparrow 2; Com. Grackle 5; Brown-headed Cowbird 2; House Finch 6; Am. Goldfinch 2; House Sparrow 5.

Total 44 species, 127 individuals.

Participant: Molly Bonnell.

Oconee County, SC. 6:30 AM to 7:30 PM. Observers: 7 in field in 3 parties (non-owling). Total (non-owling) party-hours 41.5; party-miles 462; 11 hours and 10 miles on foot, 30.5 hours and 452 miles by car.

Horned Grebe 1; Green-backed Heron 1; **Black-crowned Night-Heron 1**; Canada Goose 51; Wood Duck 8; Mallard 6; Black Vulture 11; Turkey Vulture 25; Osprey 1; Red-shouldered Hawk 5; Broad-winged Hawk 8; Red-tailed Hawk 14; Wild Turkey 1; No. Bobwhite 2; Solitary Sandpiper 1; Spotted Sandpiper 12; Com. Snipe 1; Ring-billed Gull 16; Rock Dove 25; Mourning Dove 53; Yellow-billed Cuckoo 1; Chimney Swift 82; Ruby-throated Hummingbird 2; Belted Kingfisher 10; Red-bellied Woodpecker 5; Downy Woodpecker 4; Pileated Woodpecker 13; E. Wood-Pewee 1; Acadian Flycatcher 2; E. Phoebe 40; Great Crested Flycatcher 5; E. Kingbird 14; Purple

Martin 2; Tree Swallow 8; No. Rough-winged Swallow 27; Bank Swallow 27; Cliff Swallow 5; Barn Swallow 75; Blue Jay 29; Am. Crow 95; Fish Crow 6; Carolina Chickadee 32; Tufted Titmouse 20; White-breasted Nuthatch 1; Brown-headed Nuthatch 2; Carolina Wren 6; Marsh Wren 1; Ruby-crowned Kinglet 1; Blue-gray Gnatcatcher 21; E. Bluebird 73; Veery 2; Swainson's Thrush 3; Wood Thrush 5; Am. Robin 82; Gray Catbird 8; No. Mockingbird 24; Brown Thrasher 21; Cedar Waxwing 8; Eur. Starling 106; White-eyed Vireo 4; Solitary Vireo 7; Red-eyed Vireo 31; No. Parula 4; Yellow Warbler 7; Magnolia Warbler 1; Cape May Warbler 5; Black-throated Blue Warbler 10; Yellow-rumped (Myrtle) Warbler 8; Black-throated Green Warbler 11; Yellow-throated Warbler 5; Pine Warbler 20; Prairie Warbler 8; Palm Warbler 3; Black-and-white Warbler 2; Am. Redstart 1; Worm-eating Warbler 4; Louisiana Waterthrush 3; Com. Yellowthroat 11; Hooded Warbler 17; Wilson's Warbler 3; Canada Warbler 4; Yellow-breasted Chat 7; Summer Tanager 1; Scarlet Tanager 4; No. Cardinal 44; Rose-breasted Grosbeak 9; Blue Grosbeak 7; Indigo Bunting 36; Rufous-sided Towhee 6; Chipping Sparrow 4; Savannah Sparrow 11; Song Sparrow 3; Swamp Sparrow 3; White-throated Sparrow 8; Dark-eyed Junco 6; Bobolink 20; Red-winged Blackbird 18; E. Meadowlark 20; Com. Grackle 61; Brown-headed Cowbird 7; Orchard Oriole 7; No. (Baltimore) Oriole 4; House Finch 1; Am. Goldfinch 141; House Sparrow 3. (Excellent details for all bold-faced species)

Total 106 species, 1633 individuals.

Participants: Coordinator—Steve Patterson, P.O. Box 27, Pelion, SC 29123; Don Cox, Katherine Luhring, Jill C. Patterson, Jill J. Patterson, Steve Patterson, Steve Wagner, Joy Walker.

Richland County, SC. 6:00 AM to 9:00 PM. Temp 50° to 72°F. Wind SW, 0 to 10 mph. Partly cloudy. Observers: 10 in field in 8 parties (non-owling); 4.5 hours and 92 miles owling. Total (non-owling) party-hours 53; party-miles 364; 39 hours and 36 miles on foot, 14 hours and 328 miles by car.

Pied-billed Grebe 5; Double-crested Cormorant 2; Anhinga 6; Great Blue Heron 31; Great Egret 50; Little Blue Heron 1; Cattle Egret 8; Green-backed Heron 7; Canada Goose 18; Wood Duck 22; Mallard 7; Black Vulture 18; Turkey Vulture 30; Osprey 5; Mississippi Kite 9; Sharp-shinned Hawk 1; Cooper's Hawk 2; Red-shouldered Hawk 7; Broad-winged Hawk 1; Red-tailed Hawk 19; Am. Kestrel 2; Wild Turkey 2; No. Bobwhite 15; Killdeer 12; Solitary Sandpiper 3; Spotted Sandpiper 9; Least Sandpiper 1; Am. Woodcock 1 (1); **Laughing Gull 8**; Ring-billed Gull 1; Rock Dove 80; Mourning Dove 174; Yellow-billed Cuckoo 22 (2); E. Screech-Owl 4 (3); Great Horned Owl 3 (3); Barred Owl 23 (7); Com. Nighthawk 3; Chuck-will's-widow 7 (5); Whip-poor-will 7 (7); Chimney Swift 165; Ruby-throated Hummingbird 15; Belted Kingfisher 4; Red-headed Woodpecker 21; Red-bellied Woodpecker 65; Downy Woodpecker 21; Hairy Woodpecker 4; No. (Yel.-sh.) Flicker 15; Pileated Woodpecker 13; E. Wood-Pewee 26; Acadian Flycatcher 42; E. Phoebe 6; Great Crested Flycatcher 53; E. Kingbird 39; Horned Lark 1; Purple Martin 52; Tree Swallow 25; No. Rough-winged Swallow 35; Bank Swallow 1; Barn Swallow 72; Blue Jay 73; Am. Crow 74; Fish Crow 45; crow, sp. 10; Carolina Chickadee 82; Tufted Titmouse 76; White-breasted Nuthatch 9; Brown-headed Nuthatch 23; Carolina Wren 208; House Wren 2; Ruby-crowned Kinglet 1;

Blue-gray Gnatcatcher 73; E. Bluebird 47; Veery 4; Swainson's Thrush 6 (1); Hermit Thrush 1; Wood Thrush 34; Am. Robin 76; Gray Catbird 46; No. Mockingbird 109 (1); Brown Thrasher 39; Cedar Waxwing 21; Loggerhead Shrike 24; Eur. Starling 82; White-eyed Vireo 103; Yellow-throated Vireo 19; Red-eyed Vireo 75; Blue-winged Warbler 1; Tennessee Warbler 1; No. Parula 109; Yellow Warbler 2; Chestnut-sided Warbler 3; Magnolia Warbler 10; Cape May Warbler 9; Black-throated Blue Warbler 45, Yellow-rumped (Myrtle) Warbler 19; Black-throated Green Warbler 3;Yellow-throated Warbler 26; Pine Warbler 75; Prairie Warbler 8; Blackpoll Warbler 7; Black-and-white Warbler 22; Am. Redstart 62; Prothonotary Warbler 35; Worm-eating Warbler 2; Swainson's Warbler 8; Ovenbird 27 (1); No. Waterthrush 6; Louisiana Waterthrush 5; Kentucky Warbler 11; Com. Yellowthroat 66; Hooded Warbler 52; Canada Warbler 3; Yellow-breasted Chat 34 (2); Summer Tanager 50; Scarlet Tanager 7; No. Cardinal 258; Rose-breasted Grosbeak 2; Blue Grosbeak 24; Indigo Bunting 95; Rufous-sided Towhee 68; Bachman's Sparrow 2; Chipping Sparrow 12; Field Sparrow 11; Swamp Sparrow 4; White-throated Sparrow 43; Bobolink 7 (1); Red-winged Blackbird 59; E. Meadowlark 18; Com. Grackle 275; Brown-headed Cowbird 48; Orchard Oriole 38; No. (Baltimore) Oriole 1; House Finch 77; Am. Goldfinch 14; House Sparrow 108.

Total 134 species, 4535 individuals.

Participants: Coordinator—Robin Carter, 4165 East Buchanan Drive, Columbia, SC 29206; Molly Bonnell, Robin Carter, John Cely, Caroline Eastman, Glen Englehardt, Henry Fuseler, Jerry Johnson, Alice Parham, Ken Scott, Bruce Smart.

4165 E. Buchanan Drive, Columbia, SC 29206

North Carolina Spring Count - 1992

The North Carolina Spring count report was not submitted by the compiler for inclusion.—HTH

General Field Notes

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NOTICE

Publication of any unusual sightings of birds in the Field Notes or Briefs for the Files does not imply that these reports have been accepted into the official Checklist of Birds records for either North or South Carolina. Decisions regarding the official Checklists are made by the respective State Records Committees and will be reported upon periodically in THE CHAT.

Pied-billed Grebe Breeding Records in the Southern Blue Ridge Mountains

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Although the Pied-billed Grebe (*Podilymbus podiceps*) occurs as an uncommon to rare summer resident in the southern Appalachians (Hall 1983, Kain 1987, Simpson 1992), previously published nesting reports have been confined to the Allegheny Mountain region, as noted by Hall (1983) at Canaan Valley, Tucker County, W. Va., and in the Ridge and Valley area, as noted by Kain (1987) at Laurel Bed Lake, Russell County, Va. The following observations indicate that the species also nests farther south in the Appalachians in the Blue Ridge Mountain province of western North Carolina.

On the morning of 19 June 1992, I observed an adult Pied-billed Grebe carrying fish to a small grebe chick in the grassy margin of Bass Lake (el. 3,560 ft.), a 22-acre impoundment at Moses H. Cone Memorial Park on the Blue Ridge Parkway in Watauga County, N.C. The young grebe remained well concealed in the dense vegetation at the shallow end of the lake while the adult was engaged in diving for small fish in the open portions of the lake. Upon successful capture of prey, the adult swam rapidly and directly toward the chick, which usually moved a few yards towards the open water to take the fish from the adult. The chick then quickly retreated into the dense vegetation that extended as much as 50 feet into the shallow waters along the upper margin of the lake. This feeding sequence was repeated six times during my period of observation.

Maxilla Evans (pers. comm.) reports that individual adults and pairs of Pied-billed Grebes have been regularly noted at Lake Junaluska, Haywood County, N.C. (el. 2,562 ft.) during the spring and summer months for much of the past few decades. Although she cannot determine the exact year of the record, she has observed an adult Pied-billed Grebe with a young chick on its back at the lake. These records pre-date the alterations of the shoreline and drainage of the marshy borders of the lake in recent years, which has significantly reduced the habitat suitable for nesting at Lake Junaluska. Evans states that pairs of grebes are still often seen throughout the spring months, but no evidence of nesting has been noted during the past few years, when the management policy for the lake has included lowering of the water level during the spring.

These records indicate that the Pied-billed Grebe nests in the southern Blue Ridge Mountain province. Observers should document future breeding evidence from the region, with particular attention to site characteristics, dates, clutch size, fledgling success, and number of broods.

Acknowledgment: My thanks go to Eloise F. Potter for reviewing an earlier draft of the manuscript.

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First Breeding Record of Warbling Vireo in South Carolina

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On 3 June 1991, I found the partially built nest of a pair of Warbling Vireos (*Vireo gilvus*) while birding the Bluff Unit of the Santee National Wildlife Refuge in southern Clarendon County, South Carolina. Hearing the characteristic song of *V. gilvus* in the same flooded-field area in which the species had be found during the past two summers (Carter et al. 1990, Chat 54:41). I located the singing bird and observed it chasing and perching within centimeters of a second non-singing Warbling Vireo. While the first bird sang continuously from various trees, the second (presumably female) bird foraged for nest material, pulled insect or spider silk from twigs, and repeatedly made flights to the same area of a Tupelo Gum (*Nyssa aquatica*). The two birds associated closely, with the singing male frequently accompanying the other to the nest tree but without carrying anything. Upon approaching the 7 m tall tree which stood in about 0.5 m of water, I located a partially built nest consisting of a complete ring or rim in a twig fork near the end of a leafy branch within 0.5 m of the top of the tree. The grayish-white nest rim and hanging tendrils appeared to be plant fibers and insect silk.

On this same date and at the same location, I found 2 more singing male Warbling Vireos across from the breeding pair in a long row of willows and oaks bordering a cornfield at the edge of Lake Marion. The two birds were heard singing simultaneously about 100 m apart. Neither of these individuals was seen associated with a potential mate, although each bird acted strongly territorial by flying towards me and singing directly in front of me in response to tape playback of the bird's own song.

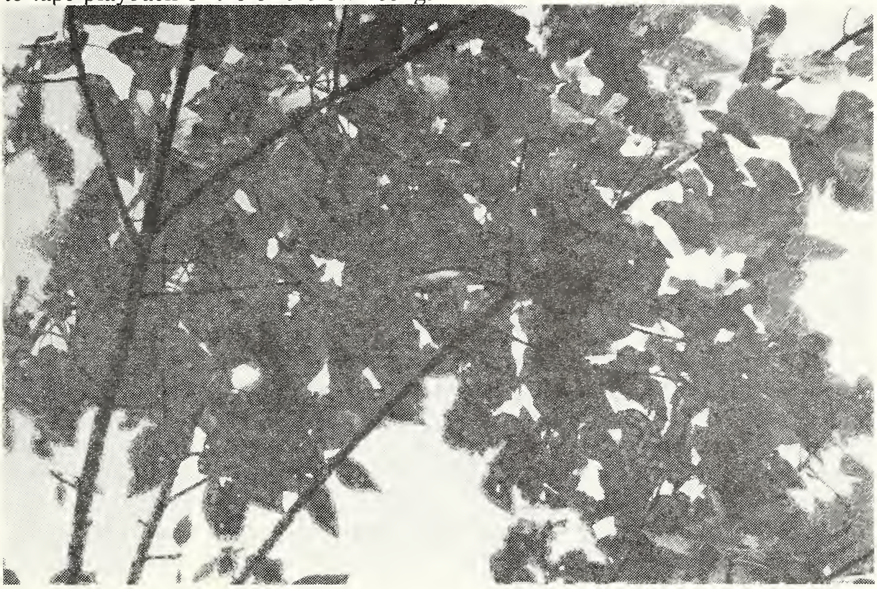

Figure 1. Warbling Vireo nest, Bluff Unit, Santee National Wildlife Refuge, Clarendon County, South Carolina (photo by the author).

On 14 June, I briefly visited the nest area and observed the completed cup-like nest from a distance of about 50 m (Figure 1), but I could not tell if it was occupied. The male sang persistently nearby until a thunderstorm interfered with further observation. On 21 June the nest was again observed from a distance, but no activity was apparent other than the presence of the singing male. I surmised that the female was incubating at this time. The other two singing males still held territories in the tree row across the field from the nesting pair.

On 4 July, I again waded out to observe the nest. The male vireo sang throughout the observation period of about 1.5 h. The female visited the nest every 3–5 min and was seen carrying crushed insects to the nest. When the female landed in the nest tree, the young responded with loud, rasping calls. She then flew to the nest and spent about 15–20 s per visit before flying away to continue foraging. The male sang continuously, sometimes from the nest tree, but was not observed feeding the young. When an Eastern Kingbird (*Tyrannus tyrannus*) perched in the nest tree, the male Warbling Vireo exhibited aggressive behavior by flying in, loudly scolding, and perching without moving within centimeters of the kingbird until it left. However, the two species shared a nearby tree without conflict.

On 15 July, I observed the nest which appeared to be empty for 10–15 min. No vireos were seen in the immediate area, but there was a singing male at the usual tree row location. A second vireo was heard directly across the road from the nest location, but no fledglings were heard or seen. The young vireos probably left the nest within a day or two after 4 July. By mid-July they could have been virtually independent and already dispersed from the nesting area.

The preceding account provides the first confirmed breeding record of Warbling Vireo in South Carolina. Also, this account provides a new high count for this species as at least 3 adult males, 1 adult female and a minimum of two young were present during June-July 1991.

First Nesting Records of Piping Plover in South Carolina

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On 14 June 1990, Richard and Marge Murray found five territorial Piping Plovers (*Charadrius melodus*) on the eastern end of Waites Island, Horry County, S.C. Waites Island is located northeast of Cherry Grove Beach near the North Carolina state line and is the easternmost barrier island in South Carolina. The habitat was typical and similar to that described by Golder (1986) and Cooper (1990).

Two adults were observed giving a "broken wing" distraction display. After a 30-minute search, one young flightless (warbler size) chick was found crouching in the dunes. The incomplete neck ring, light sand-colored upper parts, and diagnostic calls of the attending adults were observed. On 18 June 1990, Richard Murray and Frank Nesmith found one chick and four agitated adults but no eggs during a two-hour search.

On 29 May 1991, Richard and Marge Murray and Mary McDavit visited Waites Island. McDavit spotted an adult Piping Plover calling and giving a frantic distraction display while running in circles around one downy flightless chick. All of the pertinent field marks were observed including the distinctive upper tail pattern. The chick was photographed after it ran into shallow water and was rescued. No eggs were found during a two-hour search.

Richard Murray has had about 30-years experience with Piping Plovers at nesting sites, mostly in New Jersey and Virginia. Although Piping Plovers are known to nest in North Carolina as far south as Shackleford Banks near Morehead City (Cooper 1990), these observations constitute the first documented nesting records of Piping Plovers in South Carolina (Post and Gauthreaux 1989).

We thank Richard D. Brown and Dennis M. Forsythe for reviewing this report.

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Dark-eyed Junco Nests on Table Rock Mountain in South Carolina

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The Dark-eyed Junco (*Junco hyemalis*) was first recorded nesting in South Carolina on 19 May 1979 on Sassafras Mountain (el. 1060 m), Pickens County (Hamel et al. 1980). Since then several nests or probable breeding sites have been recorded at two other locations in the state. Irvin Pitts (pers. comm.) discovered two nests in or near Caesar's Head State Park, (el. 975 m), Greenville County in 1985; and one nest each year in 1986, 1987, and 1988. Doug McNair observed adult birds feeding three juveniles in a yard of the Caesar's Head Community (el. 975 m) on 12 June 1985 (McNair 1985). Charlie Wooten saw two adults feeding three juveniles at the Walhalla Fish Hatchery (el. 915 m), northwestern Oconee County on 12 June 1986 (Wooten 1987).

While conducting surveys for the South Carolina Breeding Bird Atlas Project on 5 June 1990, I observed an adult female junco carrying grass stems which she used as the main nest lining for a nearly completed nest on the top of Table Rock Mountain, (el. 850 m), Pickens County. The nest, placed in an opening of a clump of Rock Spike Moss (*Selaginella tortipila*), was on an open, steep part of the rock outcrop which makes up the majority of the top of Table Rock Mountain. Although the rock slope was about a 45° angle, the edge of this moss clump containing the nest was nearly vertical. The area in front of the nest was free of vegetation for a distance of 3 m. A small shelf 2 m lower contained several live and dead Shortleaf Pine (*Pinus echinata*), Mountain Laurel (*Kalmia latifolia*), and various grasses. A vertical drop of ca. 100 m, which formed the north face of the mountain, was about 5 m beyond the shelf and within 10 m of the nest. About 7 m above the nest was a dense thicket composed primarily of Mountain Laurel, Shortleaf Pine, *Vaccinium* sp., *Rhododendron* sp., and various mosses and ferns. After adding the grass stems to the nest, the female flew into a thicket and began a "*chipping*" call. At this time, the male, which had not been previously observed, began singing from the tip of a dead pine 30 m to the east.

On 9 June I found two eggs in the nest. I also located an old nest, probably from the previous year, slightly below and 25 cm to the right of the occupied nest. Although not seen, the male junco was heard singing in the vicinity.

On 12 June the nest contained four eggs, and the female was incubating when I approached at 0945 h. She flew at my approach but remained within 3-5 m and gave alarm "*chips*". She returned to the nest at 1000 h after I departed and concealed myself. The male sang 30 min later from a dead pine ca. 30 m to the west. After leaving the nest site, I found 8-10 juvenile juncos in a loose flock about 250 m west of the nest. No adults were seen in the area.

On 16 June the nest still contained 4 eggs, and the female was still incubating and flew at my approach. Several juveniles were still present in a nearby rock outcrop area. To my surprise on 19 June the nest was empty of eggs and birds. The nest appeared to be disturbed little if any and no other evidence was present. I assume that a predator had taken the eggs or nestlings. The juvenile flock was still present near the west end of the mountain.

At 0624 h and 0650 h on 26 June, I heard a junco singing on the east end of the mountain about 250 m east of the nest. I heard another junco singing about 100 m west of the nest site. After searching the area where this bird was singing, I found a second nest containing two nearly fledged young. Although the slope was not as steep, this nest was similarly located in a large clump of *Selaginella* with the opening in the lower (north) side. The nest construction was also similar to the first nest being composed of mosses, bark strips, grass, and rootlets, and lined with fine grass stems. A flock of about 10 juveniles was active in the vicinity of the nest, and another male was singing on the west end of the mountain about 250 m from the second nest.

Several points can be made from the above and from previous observations. First, there is enough habitat on Table Rock to support at least four breeding pairs of juncos, and the presence of singing males in four different locations supports this. Second, there is evidence that two broods can be raised in South Carolina each season. Pitts (pers. comm.) observed nest-building activity in late March, and found nests with eggs and/or young in April and May and also late June and July. McNair (1985) saw adults feeding young in mid-June as did Wooten (1987). The number of free-living juveniles seen in June on Table Rock and the fact that I observed nest-construction and egg-laying in early June would also indicate that two broods are raised. Third, the Table Rock breeding site is distinct from the previously recorded sites because of its location and distance from them. Table Rock is 8.5 km WSW of Caesar's Head, 7.5 km ESE of Sassafras Mountain, and about 60 km NE of the Walhalla Fish Hatchery.

Acknowledgments: I thank S. A. Gauthreaux, Jr., I. Pitts and J. E. Cely for reviewing the manuscript. I thank S. R. Hill for help on plant identification, and I. Pitts for generously allowing me to use his notes, made while he was naturalist at Caesar's Head State Park. Many thanks must go to J. E. Cely for involving me in the Breeding Bird Atlas, which has allowed me to have so much fun making these observations.

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CBC Rare Bird Alert
(704) 332-BIRD

BOOK REVIEW (continued from Page 24.)

spearheaded the founding of the Audubon Society of North Carolina. Besides supporting the protection of non-game birds through lobbying, journal articles and speeches, Pearson devoted much time to field work, gathering facts on the natural histories of birds—facts which he then used to bolster his argument that laws protecting non-game birds needed to be enacted and enforced by the state and federal government. By 1911 Pearson had risen to national prominence as the first full-time leader of the National Association of Audubon Societies. It is here that the stories end.

Besides the inspiring story of a boy whose interest in birds shaped his life, this book presents a compelling look at the political and public roadblocks encountered by those who wanted to save the birds for future generations. A look at its history shows that the conservation movement of today is facing nothing new in its current efforts to protect habitats and save endangered species. The one encouraging aspect of this story is that where the founders of this movement persevered, they did eventually succeed in their goals.

In addition to the text, the author has provided extensive notes for every chapter, detailing sources of information and where they may be found. There are also thirteen pages of selected bibliography which include all of Pearson's extensive publications and other literature on the early conservation movement. Coupled with a full index, these inclusions provide sources for readers who may wish to seek additional information which would otherwise prove difficult to find. —Jacqueline Spencer

BRIEFS FOR THE FILES

HARRY E. LeGRAND, JR.

(all dates Winter 1991-92 unless otherwise indicated;
CBC = Christmas Bird Count)

RED-THROATED LOON: An excellent inland count of nine was made at the Savannah River Site in Aiken County, S.C., on 17 December (fide Anne Waters).

RED-NECKED GREBE: Henry and Elizabeth Link observed one at Jordan Lake, Chatham County, N.C., on 29 December. This individual was seen by many observers through 15 January; Paul Saraceni saw this bird and another together at the lake on 12 January. Along the coast, single birds were seen in the surf at Bodie Island, N.C., on 15 February (Greg Massey, Steve Dinsmore, Jeremy Nance) and at Cape Hatteras point, N.C., on 17 February (Jennifer Howard).

EARED GREBE: An excellent inland total of four birds was seen from 12 to 21 February at sewage lagoons near Sumter, S.C., by Lex Glover and Evelyn Dabbs. Eric Dean observed one at a similar habitat throughout the winter, being present at least to 8 March, at Goldsboro, N.C. Another inland grebe was noted at the Coneross Creek arm of Lake Hartwell, S.C., from late January to 7 February (Peter Worthington, Lex Glover). Along the coast were single birds in North Carolina in the Brunswick River at Eagle Island on 1 December (Greg Massey, Jeremy Nance), in the Cape Fear River at Zeke's Island on 22 December (Ricky Davis), and at North Pond on Pea Island on 27 and 28 December (Todd Hass, Roger McNeill, et al.).

NORTHERN GANNET: An excellent count of 10,650 was made on the Bodie-Pea Island CBC on 28 December (fide Paul Sykes).

AMERICAN WHITE PELICAN: At an impoundment at Lake Mattamuskeet, N.C., one was seen on 1 December by Kelly Davis, four were found on 29 December by Ricky Davis and Bob Lewis, and seven were seen daily at that site from 10 January to 2 March by Kelly Davis. Coastal reports in that state were two at Hatteras Inlet on 7 January (Steve Dinsmore), with the first seen there on 26 December (John Wright); two in flight over Oregon Inlet on 19 January (Ricky Davis); and one at Pea Island from 31 January (Rich Boyd, Wade Fuller, et al.) to 28 February (Dinsmore). The only report for South Carolina was two seen on 6 and 7 December at Huntington Beach SP by Mike Walker, Susan Windham, Keith Windham, and Bill Pulliam.

BROWN PELICAN: Rare as far inland as Greenville, N.C., was an adult seen by Nick Pantelidis Jr. on 19 February.

GREAT CORMORANT: An outstanding count for Oregon Inlet was 10 birds, seen by several observers on the CBC there on 28 December (fide Paul Sykes). The southernmost report for the winter was of an immature at the jetties at Sullivans Island, S.C., on 25 January (Dennis Forsythe).

CATTLE EGRET: One spent the entire winter at Cape Hatteras point (Steve Dinsmore et al.) for a very rare record at that season. For some odd reason, the species is often present in midwinter in Currituck County, N.C., and

Harry LeGrand and Mike Tove saw three egrets near Maple in that county on 2 February. Notable in winter at McClellanville, S.C., were eight counted there on 5 January by Robin Carter, Caroline Eastman, and Lex Glover.

GREEN-BACKED HERON: A straggler was seen on 8 December at Billy Dreher Island SP on Lake Murray, S.C. (Robin Carter, Caroline Eastman).

GLOSSY IBIS: Robin Carter and Caroline Eastman reported an excellent winter count of 200+ Glossies coming to a roost at Savannah NWR, S.C., on 8 January.

FULVOUS WHISTLING-DUCK: A field trip of the Carolina Bird Club led by Dennis Forsythe noted one bird on 1 February at the Santee Coastal Reserve, Charleston County, S.C.

MUTE SWAN: Bill Daughtridge observed an adult (of unknown origin) with a flock of Tundra Swans in Albemarle Sound, N.C., near the mouth of the Alligator River, on 11 January. [As I have not previously received a report of the species from this location, and as the swan was seen with Tundra Swans, the bird in question might have been a migrant from farther north.—HEL]

SNOW GOOSE: Ruth and Jerry Young saw three (one blue and two white) birds in flight over Fairview, Buncombe County, N.C., on 7 December. Robert Hader noted five blue-phase geese at Raleigh, N.C., on 7 December; and Dennis Forsythe noted one at Charleston, S.C., also on that date.

BRANT: Extremely rare inland was an immature carefully studied at Falls Lake, Durham County, N.C., on 1 December by Ricky Davis and on 7 December by Steve Dinsmore. Somewhat inland were two Brants seen in a field just southeast of Lake Mattamuskeet on 29 December (Bob Lewis, Ricky Davis). In South Carolina, one was seen from late December to 29 January at Huntington Beach SP (Lex Glover et al.) and another was seen for much of the winter at Raccoon Key in Cape Romain NWR (Bill Pulliam).

GREEN-WINGED (EURASIAN) TEAL: A male, undoubtedly the bird present a year ago, was at Calico Creek near Morehead City, N.C., on 15 December (fide John Fussell).

EURASIAN WIGEON: In the tidewater portion of North Carolina, one was shot by a waterfowl hunter in an impoundment near the mouth of the Bay River, Pamlico County, N.C., on 4 January (fide Mark Thompson); and two were seen at Lake Mattamuskeet from 29 December (Bob Lewis, Ricky Davis) to 23 January (Steve Dinsmore). Coastal individuals in that state were reported from Bodie Island, Pea Island, Cape Hatteras point, and Davis during the winter. The only South Carolina report was one seen at Bear Island Wildlife Management Area on 22 February by Charles Walters and party. All sightings involved male wigeons.

GREATER SCAUP: Inland sightings were an immature male at Lake Wheeler near Raleigh on 9 December (Jeremy Nance) and five males at the Savannah River Site, S.C., on 17 December (Anne Waters). Notable for southern South Carolina were six observed at the Savannah spoil site in Jasper County on 16 February (Robin Carter, Caroline Eastman).

COMMON EIDER: Kevin Hennings noted single females on 7 December at Ocracoke and Cedar Island in North Carolina. At the latter site, an immature male was observed from 26 December (John Fussell et al.) to at least 18 April (John Wright, Paula Wright). Two immature males were present from 21 December into March at jetties at Wrightsville Beach, N.C. (Sam Cooper, John Brunjes). In South Carolina, an immature male was present in the Huntington Beach-Murrells Inlet area from 7 December to 22 February (Bill Pulliam, Lex Glover, et al.).

KING EIDER: There was just a single winter report—a surprising group of two immature males and four females seen at Oregon Inlet on 29 December by Steve Dinsmore, John Fussell, and party.

HARLEQUIN DUCK: The female seen at Cape Hatteras in late November was last noted on 7 December by Marcia Lyons, Kevin Hennings, and others. The only other North Carolina report was a female seen on 4 January at Masonboro Inlet by Sam Cooper. One was present for several weeks at Murrells Inlet, S.C., during the winter; Robin Carter and Caroline Eastman saw it on 3 January.

OLDSQUAW: Always of note inland were a male at Jordan Lake on 5 December (Steve Dinsmore) and two males at the Savannah River Site on 26 February (Howard Zippler).

COMMON MERGANSER: As many as three mergansers were present from mid-December into March at the Riverbend Steam Plant in eastern Gaston County, N.C. (fide Heathy Walker). A female was present at the tidal pond at Cape Hatteras point from 27 December (John Wright et al.) to 23 February (Steve Dinsmore et al.).

TURKEY VULTURE: Robert Hader had an excellent local count of 43 Turkey Vultures in view at one time at a landfill east of Raleigh on 3 December.

BALD EAGLE: An excellent midwinter count was six adults and 21 immatures at Jordan Lake on 12 January, as tallied by Wojtek Krol and others. Rare in the mountains was an adult seen at Lake Toxaway, N.C., on 1 January by Bill Duyck and party.

NORTHERN GOSHAWK: An adult was found shot near Denver, N.C., on 10 January and was turned in to the Carolina Raptor Center for rehabilitation (fide Taylor Piephoff).

BROAD-WINGED HAWK: Exceptionally rare in midwinter in the Carolinas, an immature was observed by Gilbert Grant in his yard in Sneads Ferry, N.C., from 17 to 19 January.

ROUGH-LEGGED HAWK: There was only one report for the winter season, without details provided. [Readers are reminded to provide thorough details on reports of this species, because Red-tailed Hawks (and perhaps other species) are frequently misidentified as this species.—HEL]

GOLDEN EAGLE: Rich Boyd, Bob Holmes, and party saw one, believed to be a sub-adult, flying over open farmland near Lake Mattamuskeet on 1 February. The only other winter report was an adult seen by Vernon Waters and others at the Savannah River Site from 17 December to 2 January.

MERLIN: Jeanine Zenge saw one in her yard near Chapel Hill, N.C., on 23 December and 2 January; it caught a Dark-eyed Junco on the former date. Paul Saraceni saw one at Jordan Lake on 15 December, and Bob Holmes saw another at New Bern, N.C., on 20 January. A very good count away from the immediate coast was four noted by Rich Boyd and party from Mesic to Hobucken in Pamlico County, N.C., on 17 December.

WILD TURKEY: Kelly Davis observed a hen with two young at the western end of Mattamuskeet NWR, N.C., on 15 July 1991 for a first refuge record. She also saw an adult pair there on 15 January. [The N.C. Wildlife Resources Commission has recently stocked turkeys into many parts of the state, including western Hyde County, Brunswick County, and other coastal counties where formerly either extirpated or absent.—HEL]

YELLOW RAIL: Continuing a recent series of similar records, Robin Carter and Caroline Eastman heard one calling from a Carolina bay in Clarendon County, S.C., on 28 December and 25 January.

SORA: Kevin Hennings and others heard one calling at a marsh in a quarry in southern Mecklenburg County, N.C., on 15 December, and another was noted at Rocky Mount, N.C., on 23 February by Ricky Davis.

SANDHILL CRANE: Harry LeGrand observed one in fields east of Nebraska, Hyde County, N.C., on 29 December; and it was seen by other birders through 10 February, when noted by Kelly Davis.

BLACK-BELLIED PLOVER: Unusual inland in winter was one seen by Anne Waters at Par Pond at the Savannah River Site on 17 December.

WILSON'S PLOVER: One was somewhat early on 26 February at Portsmouth Island, N.C. (Suzanne Wrenn, Jackie Howard).

PIPING PLOVER: Rick Murray and party reported an adult Piping with a chick at Waites Island, S.C., on 29 May 1991, perhaps the first conclusive evidence of breeding of the species in that state.

SPOTTED SANDPIPER: One wintered at the Twin Lakes area of Sunset Beach, N.C., as noted by Rick Murray. One was notable also at Huntington Beach SP on 29 January (Jack Peachey).

LONG-BILLED CURLEW: Lex Glover counted five curlews on 2 February at Raccoon Key in Cape Romain NWR, S.C., and one again spent the winter at Fort Fisher, N.C., as seen by Ricky Davis and others.

HUDSONIAN GODWIT: The bird seen in November at Huntington Beach SP remained to 7 December, for a very rare winter record for the United States. Bill Pulliam observed the godwit on that date.

LEAST SANDPIPER: One seen by Steve Dinsmore on 7 December at Falls Lake, N.C., was rather late. At sites where the species winters, notable high counts were 40+ on 23 January at Goldsboro (Eric Dean) and 22 on 17 December at the Savannah River Site (Anne Waters, George Reeves).

PECTORAL SANDPIPER: Rather late were three seen by Jeremy Nance and Greg Massey at Eagle Island, N.C., on 1 December. On the other hand, 26 early migrants was a good count on 29 February in southern Pitt County, N.C. (John Wright et al.).

PURPLE SANDPIPER: The newly-constructed jetty at Oregon Inlet provided habitat for a locally good count of nine during the winter, as reported by Rich Boyd and party on 31 January and by Steve Dinsmore on 23 February.

STILT SANDPIPER: An excellent early winter count of 12 birds was made by George Reeves at the Savannah spoil site in Jasper County on 11 December. One seen by Sam Cooper and Kevin Markham was quite early on 29 February at Eagle Island.

RUFF: Out of season was one carefully studied by Bob Lewis and Ricky Davis at an impoundment at Mattamuskeet NWR on 29 December. Steve Dinsmore and John Wright observed the bird on the following day, and it was last reported on 4 January by Dick Brown. [Thorough details have been submitted to the N.C. Bird Records Committee.—HEL]

LONG-BILLED DOWITCHER: Bob Lewis observed a good total of 40 at Lake Mattamuskeet, apparently a regular wintering locale, on 29 December.

POMARINE JAEGER: One was studied in comparison to a Parasitic Jaeger at Nags Head, N.C., on 19 January by Ricky Davis.

PARASITIC JAEGER: Two were noted by Ricky Davis at Nags Head on 19 January.

LITTLE GULL: After a winter (1990-91) of a lack of reports, the species was reported in usual numbers during this winter (1991-92) along the North Carolina coast. An adult was seen on 19 January at Nags Head by Ricky Davis, two were noted over the ocean at Avon on 15 February by Steve Dinsmore, four were seen at Cape Hatteras point on 16 February by Dinsmore and party, and one was seen at the last-named site on 29 February by Dinsmore.

COMMON BLACK-HEADED GULL: The adult returned to winter again at Morehead City, being reported at least to 9 February (Todd Hass). Others, all along the North Carolina coast, were seen at Wanchese on 19 January (Jeremy Nance, Steve Dinsmore), at Masonboro Inlet on 14 February (Sam Cooper), and at Cape Hatteras point on 15 February (Nance, Dinsmore, Greg Massey).

THAYER'S GULL: An individual in first-winter plumage was seen by Brian Patteson, Ned Brinkley, and others at Cape Hatteras point on 27 December. [Patteson submitted photos to me for documentation.—HEL]

ICELAND GULL: John Fussell observed an adult in flight over Morehead City on 10 January, for the only report of the winter.

LESSER BLACK-BACKED GULL: Steve Dinsmore counted 14 birds on the beach from Cape Hatteras point to Hatteras Inlet on 29 February, for an extremely high (though not unexpected) count for the Carolinas. Locally rare were two adults seen by Ricky Davis at Masonboro Inlet, N.C., on 20 December, and an adult seen by Dennis Forsythe at Sullivans Island, S.C., on 25 January.

GLAUCOUS GULL: One was notable at the harbor at Wanchese, N.C., on 18 and 19 January, as seen by Steve Dinsmore and Jeremy Nance.

GREAT BLACK-BACKED GULL: Rarely encountered in the piedmont, one in first-year plumage was observed by Paul Saraceni at Jordan Lake on 20 January.

BLACK-LEGGED KITTIWAKE: Very rare in South Carolina was a sub-adult seen near the jetty at Huntington Beach SP on 20 December by Lex Glover and Bob Wood. Along the North Carolina coast, one was seen on the beach at Masonboro Inlet on 20 December (Ricky Davis), two were seen at the Cape Hatteras lighthouse on 27 December (Todd Hass, Roger McNeill), one was seen over the surf at Nags Head on 19 January (Davis), and one was seen on the beach on 20 February near Waves (Jackie Howard, Suzanne Wrenn).

RAZORBILL: The only report of an alcid for the season was a Razorbill noted from shore just off Oregon Inlet on 29 December (Steve Dinsmore, Bob Holmes).

BARN OWL: Rarely reported from the mountains, there were two sightings made in the Brevard, N.C., area. Betty McIlwain flushed one from a shed on 17 October, and Erica Parmi saw one in flight on the evening of 14 December.

GREAT HORNED OWL: Formerly thought to be absent at Pea Island, this species nested on an Osprey platform at North Pond, where Steve Dinsmore saw a Peregrine Falcon diving at an owl on 23 February. Also on this date, Betty McIlwain found a nest of owls at her home near Brevard.

SNOWY OWL: A most surprising report, considering the mild winter, was one found dead on US 70 at Goldsboro in January by John Fussell. Eric Dean "researched" the report and discovered that it had been seen alive at the Seymour Johnson base on 16 November by personnel at the base, and that it was apparently hit and killed by a car around 10 January.

LONG-EARED OWL: Harold Hilton found one dead on US 176 about 8 miles east of Holly Hill, S.C., on 29 February (fide Dennis Forsythe). The specimen was given to Forsythe at The Citadel.

SHORT-EARED OWL: At a site first located during the previous winter, Ricky Davis observed 18 owls flying over a field at dusk just west of Lake Phelps, N.C., on 19 January. One was rare in the piedmont, where seen in flight over Jordan Lake on 27 January (Paul Saraceni), and another was notable near Aurora, N.C., on 24 and 25 February (Kevin Markham).

NORTHERN SAW-WHET OWL: Only infrequently reported in winter, though it apparently winters over much of the Carolinas, one was heard calling at 4:30 pm on 7 December along the Davidson River in the Coon Tree area of Transylvania County, N.C. (Ruth Young).

CHUCK-WILL'S-WIDOW: Gilbert Grant found a dead individual on a road at North Topsail Beach, N.C., on 22 February. The wings were salvaged as a study skin and were deposited at Coastal Carolina Community College.

WHIP-POOR-WILL: John Fussell observed one on a road at dusk at Fort Macon SP, N.C., on 11 and 12 January.

RUFOUS HUMMINGBIRD: An adult male was present at the feeders of Barbara Hoots in Cary, N.C., from late December to 23 February. Ken Knapp, Robert Hader, and others observed the hummingbird. An immature or female *Selasphorus* hummingbird was seen at a feeder at Tryon, N.C., from mid-October to early March, as reported by Simon Thompson.

HORNED LARK: Ricky Davis reported an excellent total of 105 larks near Red Hill, Edgecombe County, N.C., on 12 January.

TREE SWALLOW: Two seen by Paul Saraceni on 15 December at Jordan Lake provided a rare piedmont winter record.

NORTHERN ROUGH-WINGED SWALLOW: The species was seen again at a quarry at New Bern, N.C., during the winter. John Fussell and Bob Holmes noted one on 16 December, and it was seen there on 21 December by Eric Dean and Gene Howe.

BANK SWALLOW: Perhaps a first winter record for North Carolina was one seen at a quarry at New Bern on 16 December by John Fussell and Bob Holmes.

FISH CROW: Robin Carter and Caroline Eastman estimated at least 50,000 flying to a roost near the Savannah spoil area on 8 January.

COMMON RAVEN: A good local count was 16 ravens seen in view at one time by Rick Knight at Roan Mountain, N.C., on 30 January.

MARSH WREN: One was seen in a marsh in southern Mecklenburg County, N.C., on 15 December by Kevin Hennings.

BLUE-GRAY GNATCATCHER: This species appears to be wintering farther inland than it did only a few years ago, perhaps owing to mild winters. Most surprising was a count of four birds on 8 February at Goldsboro (Gene Howe); others well inland in midwinter were single birds at Jordan Lake on 11 January (Len Pardue) and near Aurora on 15 January (Sam Cooper).

LOGGERHEAD SHRIKE: A good find at any season in the mountains, three shrikes were seen on the New River, N.C., CBC on 21 December, as compiled by James Coman.

WHITE-EYED VIREO: Eric Dean observed one on the late date of 11 January at Goldsboro.

ORANGE-CROWNED WARBLER: Winter sightings from the piedmont were of individuals seen by Jeremy Nance near Raleigh on 9 December, by Heathy Walker at Charlotte on 13 December, and by Lex Glover and Bob Wood in Anderson County, S.C., on 2 January.

NORTHERN PARULA: An excellent find was one seen by Eric Dean on the Greenville, N.C., CBC on 22 December.

CAPE MAY WARBLER: This species was observed twice in North Carolina during the winter: at Lake Mattamuskeet on 29 December (Eric Dean) and along NC 43 near the Warren-Halifax County line on 9 February (Ricky Davis).

PRAIRIE WARBLER: This species has become regular near the North Carolina coast in December, but few birds probably overwinter. Thus, noteworthy was one seen by John Fussell on 9 February at Morehead City.

BLACK-AND-WHITE WARBLER: Good midwinter sightings were individuals seen on 8 February at Goldsboro (Gene Howe) and on 24 February at Lake Mattamuskeet (Rich Boyd).

HOODED WARBLER: Out of season, and a first winter record for South Carolina, was a male seen at Columbia on 21 January by Oleta LaBorde and Molly Bonnell. Bob Wood photographed it on the following day.

WILSON'S WARBLER: Individuals, males in each case, were observed at four sites during the winter. In North Carolina, Paris Trail saw one in Chowan County near the mouth of the Yeopim River on 5 February and for about a week thereafter. In South Carolina, one was along the Saluda River in Lexington County on 8 and 9 December (Tom Hankins, Robin Carter), one was present at Huntington Beach SP from 26 December into March (Tim Kalbach, Lex Glover, et al.), and one was at Savannah NWR on 16 February (Carter, Caroline Eastman).

YELLOW-BREASTED CHAT: Normally quite rare in winter in the Carolinas, the species was observed on many occasions. In North Carolina, singles were seen on 8 December near LaGrange by Gene Howe and Betty Grady, on 16 December at New Bern by John Fussell, and on 5 January in Wilmington by Sam Cooper; and three were tallied on the Mattamuskeet NWR CBC on 29 December (fide Allen Bryan). In South Carolina, Bill

Hilton Jr. banded one near York on 1 December, and he recaptured it on the following day.

WESTERN TANAGER: An adult male was present at Don Watts' feeder in Goose Creek, S.C., from 26 December through the remainder of the winter. Lex Glover, Robin Carter, and other birders observed the tanager in January. Another bird, considered to be a female, was seen by Pete Laurie eating berries in his yard at Johns Island, S.C., on 12 January.

BLUE GROSBEAK: Quite rare in winter were two winter-plumaged males seen by Rick Murray and party near the Santee River delta, S.C., on 26 December.

PAINTED BUNTING: Allen Bryan observed a female or immature (a "green" bird) in central Carteret County, N.C., on 15 December. Quite a surprise was a flock of three "green" buntings seen by Ricky Davis at Fort Fisher on 22 December, and another "green" bird was seen in February at a feeder in Emerald Isle, N.C., by Mary Batten. An adult male was noted by Brenda Tucker at her feeder at James Island, S.C., from 11 to 15 January.

DICKCISSEL: There were just two winter reports for the Carolinas. Surprisingly, both came on the same CBC, as Ricky Davis and Jeremy Nance each saw birds in the Morehead City area on 15 December.

CLAY-COLORED SPARROW: Single birds were found at four sites in eastern North Carolina, where the species probably winters sparingly. Jeremy Nance saw one near Morehead City on 15 December, Eric Dean saw one near Greenville on 22 December, Sam Cooper saw one near Aurora on 15 and 22 January, and Dean saw another south of LaGrange on 18 January.

VESPER SPARROW: Seldom seen in winter in central North Carolina were six observed by Ricky Davis near Red Hill in Edgecombe County on 12 January.

LARK SPARROW: Ricky Davis observed one at a sand pit near Rocky Mount, N.C., on 12 January, for a very rare inland record.

GRASSHOPPER SPARROW: Single individuals of this easily overlooked species were observed in North Carolina on 22 December by Eric Dean near Greenville and on 26 December by Ricky Davis near Edenton.

LE CONTE'S SPARROW: Ricky Davis noted one near Edenton on 26 December; this bird was seen in November by Allen Bryan. Robin Carter and Caroline Eastman noted single birds at two locales in South Carolina—at the edge of a salt marsh at Huntington Beach SP on 4 January and in a short grass habitat near Barnwell on 18 January.

LINCOLN'S SPARROW: Two were seen by Nathan Dias and others at Magnolia Gardens, S.C., from 9 November to 1 February. The only other South Carolina sighting was made by Robin Carter and Caroline Eastman at Fairview Farms in Spartanburg County on 7 January. In North Carolina, four were tallied on the Greenville CBC on 22 December by Eric Dean and others, three were seen by Dean near LaGrange on 18 January, one was seen in Carteret County by Allen Bryan on 15 December, one was noted near Southport by Jeremy Nance on 22 December, and one was seen near Lake Mattamuskeet by John Wright on 29 December.

WHITE-CROWNED SPARROW: Locally rare were coastal plain sightings of two birds at Cape Hatteras point on 18 January (Steve Dinsmore, Jeremy Nance), and single birds near Mayesville, S.C., on 18 January (Evelyn

Dabbs et al.), near Wilmington on 9 February (Sam Cooper), and at Buxton on 22 February (Dinsmore).

LAPLAND LONGSPUR: Three birds were seen by Ricky Davis in northern Edgecombe County on 12 January. Elsewhere, single individuals were noted at Fort Fisher on 22 December (fide Davis), near Aurora on 7 January (Sam Cooper), near Barnwell, S.C., on 18 January (Robin Carter, Caroline Eastman), and at the Charlotte Motor Speedway near Harrisburg, N.C., on 22 February (Taylor Piephoff).

SNOW BUNTING: At least six were found at Cape Hatteras point on 21 November by Neal and Pat Moore and Keith and Diane Andre. Elsewhere, three were observed at Bird Shoal at Beaufort, N.C., on 15 December by Sam Cooper and Kevin Markham, and three were also seen at Sunset Beach, N.C., from 21 January (Rick Murray) to 18 February (Kevin Hennings).

YELLOW-HEADED BLACKBIRD: An immature male was found at Charleston on 13 October by Dennis Forsythe and party. Doris Kingdon observed and photographed an adult male at her feeder near New Bern from 1 March to 6 April, and she saw a female there on 7 March.

BREWER'S BLACKBIRD: Records of this very common Western species have been accumulating in recent years, probably because of a greater scrutiny of blackbirds by Carolina birders. In North Carolina, the only sighting was of a flock of up to seven birds at Cherry Hospital near Goldsboro from 2 December to the end of February (Eric Dean et al.). At Goat Island near Lake Marion, S.C., a traditional wintering site, as many as five birds were seen during the winter by Robin Carter and others. Other reports in the latter state were a pair seen by Simon Thompson at Landrum on 21 December and a female seen by Nathan Dias at Magnolia Gardens on 14 March.

NORTHERN (BULLOCK'S) ORIOLE: An adult male was seen and photographed by Avril Nicholson and other birders at a feeder in Hilton Head Island, S.C., from 4 to 12 February.

PURPLE FINCH: Bill Hilton Jr. reported that he banded only 114 during the winter (through 24 March). He typically banded from 400 to 600 per winter in the mid-1980's. [This and other cardueline finch species have dramatically decreased as winter visitors to the Carolinas in the past ten years, perhaps owing to an increasing number of feeders in more northerly states and provinces that retain the birds for the winter.—HEL]

PINE SISKIN: Rick Knight had an excellent count of 300 siskins at Roan Mountain on 30 January.

CORRIGENDA: The immature male *Selasphorus* hummingbird present at Lancaster, S.C., during the winter of 1990-91 (Chat 56:13) should be considered as "*Selasphorus* sp.?", rather than "probable Rufous", according to an observer (Lex Glover). A bird reported as a Brewster's Warbler hybrid in South Carolina in June 1990 (Chat 55:65) has been determined to be a hybrid of some sort, but not a Brewster's (fide Barny Dunning). A copy of the description of the bird was sent by Douglas McNair to Kenneth Parkes, an expert on the Blue-winged Warbler/Golden-winged Warbler complex. A Blue-winged Warbler was probably one of the parents, especially since the song of that species was heard in the field by Dunning.

BOOK REVIEWS

BIRDS OF THE BLUE RIDGE MOUNTAINS: A Guide for the Blue Ridge Parkway, Great Smoky Mountains, Shennandoah National Park, and Neighboring Areas.

Marcus B. Simpson, Jr., 1992. University of North Carolina Press, P.O. Box 2288, Chapel Hill, NC 27515-2288. Illus. Paperback. 354 pp including bibliographical references and index. $14.95. (Also available in hardback.)

The only real "fault" of this excellent book might be its title; primarily, it is a bird-*finding* guide, not a field guide to Blue Ridge Mountain birds as it might suggest. However, those readers who are used to the Lane-type bird-finding guides and similar booklets will discover that Simpson's book is roughly three times the length and packed full of useful and interesting information.

Simpson begins with a discussion of the geography, climate, and vegetation that influence the bird life and birders in the regioNo. This is followed by a section on bird-watching in the mountains. Taken together, these first 50 or so pages contain a wealth of information that will be useful to people who don't know everything about the Blue Ridge Mountains nor everything about finding birds in them.

One of the most useful features of this guide is that the specific directions to good birding locations given in the text are usually accompanied by clear and precise half-page or full-page maps that show not only roads but also foot trails. Readers who have attempted to find birding spots noted in some bird-finding guides are likely to have been frustrated by incomplete or difficult-to-understand directions. The maps and text certainly go a long way to reduce such confusion.

In developing his site descriptions, Simpson has included information that may be unique in guides of this type: access for handicapped and physically disadvantaged birders. In fact, he has included a five-page subsection specifically targeted to this audience.

This is an admirable focus, which will prove to be useful to birders who have limitations other than physical, as well. People who don't have the time, appropriate clothing, or interest for hiking could certainly use the information about birding the overlooks, parking lot margins, campground drives, and Forest Service roads that are highlighted.

The book lists about 300 detailed site accounts within 45 general areas in eight states. Over half of these (24) are in North Carolina, and almost one-third (14) are found in Virginia. One to three areas are noted for South Carolina, Georgia, Tennessee, West Virginia, Maryland, and Pennsylvania.

While most the "hot spots" are along the 469-mile length of the Blue Ridge Parkway, several adjacent and nearby locations are also described, such as the southeastern Blue Ridge escarpment area and several other high-country spots in South Carolina.

Another feature of the book that will be of interest to listers and others interested in finding particular species is a 39-page annotated checklist and finding guide section This is supported by an index to bird species (separate from the general index), which lists most pages where each bird is mentioned. For instance, more than a dozen locations are cited for the Northern Saw-whet Owl, which is noted in 37 places in the text.

At one inch thick, this 6" x 9 1/4" book won't fit easily into a pocket, but it should be on the seat beside you the next time you take a drive in the Blue Ridge Mountains. In fact, the price is such a bargain that you may want a "car copy" for your margin notes and dog-earing, and a library copy for when you just want to do a little armchair traveling.—Dennis E. Burnette

SAVING AMERICAN BIRDS: T. Gilbert Pearson and the Founding of the Audubon Movement

Oliver H. Orr, Jr. 1992. University Press of Florida, Gainesville, 32611.
Hardback, 296 pp with index and selected bibliography.

This book presents an intertwining of two tales: a biography of the boyhood and early career of T. Gilbert Pearson and the fledgling efforts of a group of conservationists to save American birds. Like many boys of his day, Pearson (1873-1943) was largely a self-taught oologist, collecting and trading bird eggs while developing an expansive knowledge of avian natural history. The youngest child of Quaker parents, Pearson fortuitously moved with his family to a small town in Florida when he was nine. Although the local public schooling proved inadequate, the surrounding country with its rookeries and large wintering bird populations provided Pearson with opportunities for field experience unmatched elsewhere. The wealth of birds in Florida drew well-known ornithologists south to study them. One of these was Frank M. Chapman. By chance Pearson met him, and Chapman's encouragement helped shape the young man's future career. Desirous of a college education which his family could not afford, Pearson traded his collection of eggs and skins for two years room, board and tuition at Guilford College, a Quaker institution near Greensboro. His education at Guilford remedied Pearson's lack of formal education, and saw the honing of his skills as a speaker and writer.

Interspersed between the accounts of Pearson's youth and subsequent academic career are chapters on the beginning of the conservation movement in the US. This movement had its roots in the Nuttall Ornithological Club from which the American Ornithologists' Union grew. Among its prominent members were Elliott Coues and William Brewster. The AOU members helped establish ornithology as an accepted field of study and also began the movement to protect non-game birds that were being slaughtered by the thousands for their feathers, which were in great demand by the women's fashion industry here and abroad. Chapman sponsored Pearson for associate membership, which provided him with needed contacts within the field.

The two interweaving narratives are maintained through the descriptions of the founding of state Audubon societies dedicated to the conservation of birds and Pearson's academic career. Following Guilford he studied and taught at Chapel Hill and then at the State Normal and Industrial College (now the University of North Carolina-Greensboro). It was here in 1902 that Pearson

(continued on Page 13.)

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CBC

Verified Winter Record of Scarlet Tanager at Charleston, SC, and a Review of the Winter Status of Scarlet Tanager in the Southeast United States

DOUGLAS B. MCNAIR[1] and JOSE ESCOBAR[2]

Abstract: An immature female Scarlet Tanager (*Piranga olivacea*) remained in a suburban subdivision at James Island, Charleston County, S.C., from 28 December 1990 to 13 January 1991. Photographs document this first verified winter record for the southeastern United States. A review of winter season (20 November-20 March) sight reports in the Southeast suggests that, at best, the Scarlet Tanager is a very rare winter vagrant. However, none of these sight reports have been adequately documented.

The sixth edition of the A.O.U. Check-list (1983) did not list a single winter record of the Scarlet Tanager in the southeastern United States. In this article, we document the first verified winter record of this species in this region, from South Carolina. We also compile and attempt to evaluate all known late fall and winter reports of the Scarlet Tanager from the southeastern United States.

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Methods

On 28 December 1990, Jose Escobar (hereafter JE) discovered an immature female Scarlet Tanager at his bird feeder on James Island in Charleston, South Carolina. The bird was watched daily thereafter by JE until 13 January 1991, when last seen. Several other individuals saw the tanager, including McNair (hereafter DM). JE took numerous photographs of the bird on 28–29 December 1990 (Ch. Mus. Acc. No. 1991.3). Our description of the bird is based on these photos and our detailed field notes. We observed the bird at leisure under a variety of light conditions and from as close as 3 m.

On 3 January 1991, we conducted two independents tests of a playback for a response by this individual to a call note of an adult male Scarlet Tanager (recorded by DM near Mt. Pisgah picnic area, Great Balsam mountains, North Carolina; archived at Fla. Mus. Nat. Hist.). The function of this "tshick" chip note is unknown, but it probably serves as a contact call or is used during mild aggressive encounters. The Scarlet Tanager was foraging in natural habitat more than 50 m from the backyard of JE prior to each playback. Each time the recording was played at a set volume for 2 min, unless the Scarlet Tanager responded earlier; tests were conducted about 20 min apart.

On 3 January 1991, we also conducted three independent tests for a response to playback of the typical calls of an adult male Summer Tanager (*P. rubra*) (recorded by DM at the Sandhills Game Lands, Richmond County, North Carolina; archived at Fla. Mus. Nat. Hist.), using the same protocol as above.

The latest specimen evidence of Scarlet Tanager in fall for the southeastern United States, i.e., west to Louisiana and north to Maryland, is one immature male from the District of Columbia, 13 November 1896, U.S. Nat. Mus. (153988), one from Lexington, Virginia, 17 November 1967 (Kain 1987), two (adult male, immature female) killed at the WCTV tower, Tallahassee, Florida, 9 November 1978 and 12 November 1965 (TTRS 3617 and 3687), and one immature male collected at Hialeah, Dade Co., Florida, 18 November

1972 (TTRS 3354). This specimen evidence is consistent with sight report data which indicate the Scarlet Tanager usually departs from the southeastern U.S. by mid to late October, occasionally lingering to early November (Stewart and Robbins 1958, Imhof 1976, Moore 1986, Post and Gauthreaux 1989, Aud. Field Notes 15:34, 1961; Aud. Field Notes 16:25, 1962; Am. Birds 25:48, 1971; Am. Birds 39:45, 1985; Am. Birds 41:79, 1987). The latest records for southeastern Louisiana are 10 November 1985 and 13 November 1983 (Am. Birds 40:129, 1986; Am. Birds 38:214, 1984).

We have no verified evidence that Scarlet Tanagers return to the southeastern U.S. prior to late March. Consequently, we dismiss undocumented winter season sight reports for adult males in complete alternate plumage since their occurrence is extremely unlikely, i.e., at Anne Arundel, Maryland, on 2 January 1955 (Stewart and Robbins 1958; Aud. Field Notes 9:114, 1955), and at Arlington, Virginia, on 8 March 1954 (Aud. Field Notes 8:244, 1954) (C. Wilds, *in litt.*).

Otherwise, our minimal criteria for initial consideration of a Scarlet Tanager report in the southeastern U.S. from 20 November through 20 March, a period for which verified evidence is heretofore lacking, is that locality, date, and observer be known. We have listed reports for north and south Florida separately because south Florida is a distinct avifaunal region in the United States and continental cold fronts are less frequent here (Bock and Root 1981, Chen and Gerber 1990). We have dismissed winter season reports for which observers are unknown, i.e., three CBC's in Florida, one in North Carolina. We solicited further details on all remaining winter season reports, especially data on age and sex. Based on correspondence received, especially information on observer reliability, we also have not listed some sight reports for which documentation is inadequate, i.e., nine in Florida (Bailey 1925:113; Fla. Nat. 12:35, 1939; Aud. Field Notes 13:289, 1959; Aud. Field Notes 21:193, 1967; Aud. Field Notes 22:433, 1968; Aud. Field Notes 23:40, 1969; Aud. Field Notes 23:472, 1969; Am Birds 37:557, 1983; Am. Birds 42:255, 1988; L.A. Atherton and H.M. Stevenson, *in litt.*; DM, pers. exam.), and one in Louisiana (Am. Birds 37:652, 1983; anonymous, *in litt.*). For all but two above rejected sight reports, no information was provided on the age and sex of the birds.

Results

Verified Winter Record, South Carolina.—Overall, the tanager's color was olive-green (Fig. 1). The upper parts were dull olive-green with no contrast between upper tail coverts, rump, back, nape, or crown. The under parts were slightly yellower, particularly on the under tail coverts and parts of the breast. A portion of the lower belly and flanks were dingy whitish-gray. The thin olive-green orbital ring was distinct and almost complete. The lores were pale olive-green, without a trace of dusky color. The remiges, rectrices, and upper wing coverts were dusky brownish with an olive-green wash. Under certain light conditions and at some angles, the rectrices and remiges could look fairly dark and the olive-green wash was much less apparent. The outermost primary coverts and primary tips were the darkest portion of the entire wing, although the upper wing coverts lacked black feathers. The primaries and secondaries had narrow olive-green margins on the vanes. More prominent were green-yellow tips to the greater and median wing coverts, which formed two narrow and distinct wing bars. Most prominent were broad yellowish-white margins to the tips of the tertials. The under wing coverts were whitish.

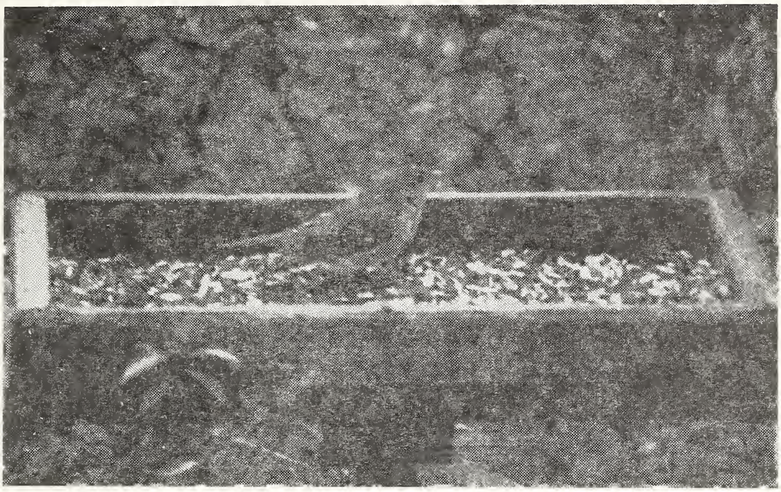

Fig. 1. Female Scarlet Tanager in Charleston, S.C. 28 December 1990 to 13 January 1991. Original color photograph by Jose Escobar.

Some body feathers were evidently missing or growing in a few spots on the throat, chin, uppermost breast, and middle flanks, which suggested that the tanager was molting.

The notch was present but not easily discernible on the relatively short stubby *Piranga* bill, which was generally pale (light yellowish-flesh color); most of the upper half of the upper mandible was horn color. The mouth lining was pale (light yellowish-flesh color). The eyes were black. The legs were slate-gray.

The predominant habitat where the tanager was found is altered maritime hammock forest, dominated by live oak (*Quercus virginianus*) and loblolly pine (*Pinus taeda*). A 10 ha undeveloped area, comprised of a small stand of loblolly pines and a dense mixture of hardwoods, shrubs, and vines, lies adjacent to the home of JE. The backyard is planted with numerous ornamental and native shrubs and trees. The bird focused its activities on the undeveloped area, where it roosted 2–3 m above ground in a grapevine and shrub tangle 5–10 m from numerous feeders placed in the backyard. The tanager initially fed throughout the day on the ground or at the feeders on whole sunflower seeds, which it easily shelled and ate. It also ate bananas. Beginning 6 January, waxworms (*Galleria mellonella*) and mealworms (*Tenebrio molitor*) were provided on trays *ad libitum*. The tanager immediately switched to feeding on both species of worms, particularly the waxworms. It did not discontinue feeding on sunflower seeds, although it ceased to feed on any fruits. For 4 h of timed observations, JE observed the bird to feed on the worms at the rate of 10–15/h up until 13 January, the last day it was seen. The tanager ate alongside Brown Thrashers (*Toxostoma rufum*), Northern Mockingbirds (*Mimus polyglottos*), Northern Cardinals (*Cardinalis cardinalis*), Rufous-sided Towhees (*Pipilo erythrophthalmus*), and some smaller species; sometimes, it was aggressive toward both these large and smaller species. It was rarely deterred from feeding, even by the numerous Boat-tailed Grackles (*Quiscalus major*). The tanager also foraged away from the feeders, gleaning and sallying for insects at various heights in the undeveloped area and, prior to 6 January, feeding on turf lily (*Liriope muscari*) berries in the backyard. It also drank water from birdbaths. The tanager was never heard to utter a single vocalization, under any circumstances.

The tanager never responded at a distance to playbacks of the "tshick" chip note of the Scarlet Tanager. Only when already present near the feeders did she peer at the speaker.

It also never responded at a distance on 31 December 1990 and 3 January 1991, when we played back the "chip-burr" calls of a Scarlet Tanager (the recording was poor, the protocol was not standardized, and the tests were not independent). Only when present near the feeders did she peer at the speaker. Once, she flicked her wings four times in apparent agitation.

In contrast, the Scarlet Tanager's response to each playback of the Summer Tanager's typical calls was dramatic. Within 2 min or just after the tape finished, it flew in directly and at its closest approach perched on a tree branch 3 m above ground and peered at the speaker 7 m away. The bird did not approach closer when we resumed playing the Summer Tanager calls at a lower volume.

Winter Season Reports.—From 1953 to 1991, we found 16 reports of Scarlet Tanagers from 22 November to 8 March in seven states in the Southeast from Maryland to Louisiana; six (37.5%) of the reports are from Florida (Table 1). Other than our South Carolina record, only one other report has additional supporting evidence: a male was banded in late November at Nashville, Tennessee. Of the 16 reports, only one occurred prior to 1960. Almost half are from the 1960s and 1970s and the remaining half are from 1980 to the present. Few reports occurred after the end of the CBC period. Half of the reports are of birds sexed or aged: four males and four females. Of these, only two were aged: one immature female at Charleston and an adult male at Guilford County, NC.

Discussion

Verified Winter Record.—The whitish under wing coverts, seen by JE, are diagnostic for the Scarlet Tanager (Pyle et al. 1987), although we have no photographic documentation for this character. However, the overall olive-green color without any contrast on the upper parts, distinct dusky brownish upper wing coverts, and relatively short stubby bill also confirmed that our bird was a Scarlet Tanager (Dwight 1900, Mengel 1963, Pyle et al. 1987, Kaufman 1988). Based on the absence of any black feathers in the upper wing coverts, we concluded that it was a female (Dwight 1900, Pyle et al. 1987). Based on the lack of strong contrast of the remiges and rectrices compared to the body plumage, presence of distinct and narrow green-yellow wing bars, and retention of some dingy whitish-gray feathers on the lower belly and flanks, we concluded that the female was an immature in first basic plumage (op. cit.). This combination of all above characteristics eliminated the possibility of our bird being a Summer, Western (*P. ludoviciana*), or a hybrid *Piranga* tanager. Except for our re-

State	County	Date	Sex/Age	Observer(s)	Reference
TN	Davidson	27 Nov 74	M(banded)	K. Goodpasture	AB 29:73, 1975
MD	Worcester	27 Dec 53	U	C. Clagett E. Baldwin	AFN 8:102, 1954 Stewart & Robbins 1958
VA	James City	Early Dec 84	U	A. Springe, *fide* B. Williams	AB 39:156, 1985 Kain 1987
NC	Halifax	22 Nov 87	U	M. Lynch	Chat 52:95, 1988
NC	New Hanover	28 Nov 61	U	P. Mebane	Chat 26:25, 1962
NC	Guilford	28–29 Dec 88	M, ad.	H. Link H. Hendrickson	Chat 54:28, 1990
NC	Wilkes	30 Jan–1 Feb 72	F	W. Smith	Chat 36:67, 1972
SC	Charleston	28 Dec 90–13 Jan 91	F, imm. (photo)	J. Escobar D. McNair	This study
LA	Plaquemines Parish	28 Dec 65	U	J. Gee	AFN 20:297, 1966 Lowery 1974
LA	Jefferson Parish	2 Jan 84	M	G. Dubus J. Whelan	AB 38:679, 1984
N FL	Santa Rosa	22 Nov 72	F	R. Duncan	AB 27:629, 1973
N FL	Duval	25 Nov 74	U	J. Cocke	AB 29:47, 1975
N FL	Hillsborough	7 Feb 87	F	K. McGowan	AB 41:274, 1987
N FL	Duval	8 Mar 82	M	V. Markgraf	AB 36:845, 1982
S FL	Monroe	23–28 Dec 85	U	J. Ondrejko F. Hames	AB 40:273–274, 1986
S FL	Monroe	1 Jan 61	U	J. Bull	AFN 15:175, 1961

cord the latest verified records of the Scarlet Tanager in the southeastern U.S. have occurred in mid November. In addition, a banding record (male) occurred on 27 November in Tennessee.

None of the late fall and winter season sight reports have been properly documented, despite the scarcity of this species in the Southeast during this period. Unfortunately, we believe that many of the sight reports included in Table 1, as for other undocumented sight reports rejected *a priori* because they failed to meet minimal criteria or other considerations, are of no value. Many CBC reports are without any supporting details on the sex and age of the birds observed. Therefore, we reject all these reports unless properly documented in appropriate journals.

We suspect that at least some of the records in Table 1 were misidentified Summer Tanagers. Summer Tanagers may closely resemble female Scarlet Tanagers in many characteristics of the latter's plumage, a problem not stressed in available field guides or in Isler and Isler (1987) (DM, pers. exam.; J.V. Remsen, *in litt.*). Teulings (1973) documented the perplexing plumage variability of some Summer Tanagers banded in North Carolina. Consequently, the apparent previous lack of recognition of great plumage variability in Summer Tanagers has probably contributed to under appreciation of identification difficulties and some confusion as Scarlet Tanagers. Plumage variability in Scarlet Tanagers has not been examined critically. The possibility of confusing Scarlet Tanagers for other species also remains.

Both Scarlet and Summer tanagers overlap extensively and compete in use of habitat and other ecological resources, which includes aggressive male responses to each other's natural or recorded songs (Shy 1984a, 1984b). Our silent winter season female Scarlet Tanager responded strongly to playbacks of the typical call notes of the Summer Tanager, a response consistent with the song playback results of Shy (1984a). Therefore, it must not be assumed that a silent, unidentified *Piranga* tanager of either sex that responds to playbacks of a call note of a known *Piranga* species is necessarily that known species. To complicate matters, in one instance a Scarlet Tanager incorporated the typical call note of the Summer Tanager into its own repertoire. On 2 May 1987, R.F. Ringler observed a Scarlet Tanager in Worcester County, Maryland, to give the typical call notes of both species, "picky-tuck, chip-burr", which was repeated several times (Am. Birds 41:414, 1987). Because of the frequency and intensity of aggressive interactions between these species, copying of the other species' call notes may be more frequent than this one instance suggests. If otherwise unidentified winter season Scarlet or Summer Tanagers in the Southeast utter the typical call note, observers should remain alert to the possibility of heterospecific vocal copying.

In conclusion, we find it difficult to evaluate the significance of our analysis of late fall and winter season Scarlet Tanager reports in the southeastern U.S. In addition to the one banding report, we suspect that some of the sight records are also valid. Some of these late reports may pertain to injured birds. A male reported to occur at Jefferson Parish, Louisiana, was rumored to be injured (J.V. Remsen, *in litt.*). Injured or not, the Scarlet Tanager is a casual to very rare species in the southeastern U.S. during the late fall and winter season, and none is known to have survived, unlike the Summer Tanager, which occurs regularly during winter in the Southeast and occasionally survives (AOU 1983; DM, pers. exam. of Aud. Field Notes, Am. Birds, and state bird journals; H.M. Stevenson, unpubl.). The normal winter range of the Scarlet Tanager is in South America (AOU 1983). Species with such winter distributions are extremely unusual in winter in the southeastern U.S., in contrast to species that winter in Middle America and the West Indies, such as the Summer Tanager.

Acknowledgments. We thank J.W. Hardy, Curator of Ornithology, Florida Mus. Nat. Hist., Univ. Florida, for archiving the tanager recordings of DM and T. Engstrom, Tall Timbers Research Station, Tallahassee, Florida, for lending us specimens of the Scarlet Tanager. R.L. Zusi, Curator of Birds, U.S. Natl. Mus., supplied us details on the specimen collected in 1896 at the District of Columbia. We thank the late H.M. Stevenson for sharing unpublished data with us. We finally thank L.A. Atherton, C. Wilds, D.M. Forsythe, H.P. Langridge, H. E. LeGrand, Jr., J.C. Ogden, K.C. Parkes, J.V. Remsen, H.M. Stevenson, and an anonymous individual for their critical reviews. N. Pringle typed Table 1. Reports in Aud. Field Notes, Am. Birds, The Chat, and Fla. Nat. are not referenced below. This paper is dedicated to the late Henry M. Stevenson.

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SPRING BIRD COUNT—1992

John O. Fussell III

Only thirteen localities were sampled on the 1992 Spring Bird Count. This low turnout is not surprising, because the count has not been published in several years. Coverage was especially sparse in South Carolina (only one count), and on the coast (also only one count). The 1992 Spring Count was largely restricted to the North Carolina Piedmont, with eight censuses being made in that region. Indeed, the Triangle and Triad areas accounted for six counts, almost half. Perhaps, publication in The Chat again will bring about renewed interest in the Spring Count, and the submittal of reports from new areas in the future.

Not surprisingly, the total species list was low, only 229. Specifically, this low total can be largely attributed to poor coverage in South Carolina and along the coast. Actually, the total list of land birds was not much below average. Wilmington, with 161 species, led all counts. Inland, Jordan Reservoir and Winston-Salem had quite respectable totals of 145 and 143, respectively.

Details fro numerous rare and tardy species were inadequate, and, unfortunately, three very rare/extremely rare species had to be deleted because of inadequate details. Please note, if a bird is considered to be rare, then it must be described. A mere statement that a bird was seen by John and Jane Dole does not represent a description. It should be stressed that providing adequate details does not necessarily entail a laborious undertaking for the compiler; many marginally rare species can be adequately detailed with just two or three lines. However, the description must rule out all other species. For extremely rare species, especially ones that are similar to more common species, a page of details may be needed to adequately document the record. Compilers are especially challenged to adequately document late Purple finches; I suspect that some of the reported "Purple Finches" are actually House Finches.

Because of the overall poor documentation, and lack of compiler's comments, few compiler's appear in the comments section of the 1992 Spring Count. Of course, the poor level of documentation is understandable, in that the count has not been published in a decade. With the re-publication of the Spring Count, we are asking that compilers do a better job of documenting rare sightings. We also urge that compilers provide other comments, e.g. descriptions of how changes in land use have affected their count circles, and descriptions of some of the more striking changes in bird life in their areas over the years.

With the first publication of the Spring Count in a decade, it is indeed interesting to look through the count table, and note some changes in numbers that have occurred for many species during the last ten to fifteen years or so. Some of the counts that really stand out are listed here:

Double-crested Cormorant. This species is much more common on North Carolina Piedmont counts than formerly.

Canada Goose. Geese were recorded on every count, much in contrast to former years. Undoubtedly these are birds established from feral populations.

Bald Eagle. This species represents a real success story for the last decade. The total of eighteen birds contrasts sharply with a decade ago; not one eagle was found on the 1982 Spring Bird Count.

Cooper's Hawk. This bird continues to slowly increase as a resident species. On this year's count, more Cooper's (18) were found than sharpies. Formerly, I would have dismissed this sort of ratio as being the result of misidentifications, but no more. Several observers now comment about how it is increasingly easy to find Cooper's Hawks on Christmas Counts.

Wild Turkey. Seven birds were found on three counts. Might the day come when turkeys are easier to come by than Northern Bobwhites?!

Northern Bobwhite. Even considering that only thirteen counts were made, the total of 185 individuals is quite dismal. A few localities had only single-digit counts, and Wilmington had but a single bird.

American Coot. Only five were tallied, a notably low figure compared to one-two decades ago. Was the productivity of the Piedmont's reservoirs largely a temporary phenomenon?

American Woodcock. A total of only four individuals was found. Let's hope that this decrease is a least in part cyclical.

Common Snipe. Surprisingly, the total count of this species (ten) was also rather dismal.

Ring-billed Gull. A total of 631 was found in the North Carolina Piedmont. The region's reservoirs are perhaps important primarily as sites for roosting.

Barn Owl. None were reported on any of the counts. Many active field observers have commented on the increasing degree of difficulty of finding the species, even in the winter. Some suggest that an increase in Great Horned Owl populations is at least part of the problem.

Chuck-will's-widow and Whip-poor-will. Notably low totals, 44 and 94 respectively, were recorded for both species, which are undoubtedly losing habitat as rural areas are transformed to suburbia. Notably, on the Wilmington count, more Whip-poor-wills were tallied than Chuck-will's-widows. Twenty years ago, that situation would have been considered laughable.

Loggerhead Shrike. Eighteen individuals were found on the North Carolina counts. Taking the low number of reports into consideration, this total is roughly comparable to totals of a decade ago. Many feel that this species has now leveled off across most of the state, and may even be increasing slightly at a few localities.

Bachman's Sparrow. Only four individuals of this Federal candidate species were found, not surprising in that most reports were from the North Carolina Piedmont. However, only two individuals were reported form Wilmington.

Winter finches. As one active birder now says, "What are they?" No Evening Grosbeaks were found, and the only Pine Siskins were in the mountains. Perhaps several of the reported Purple Finches were actually House Finches. Of course, the numbers of winter finches have always gone up and down from year to year. Nowadays though, they stay down.

House finch. They just get more and more common. Six birds were found on the coast at Wilmington, and, in North Carolina, House Finches are now breeding almost everywhere.

House Sparrow. Although few would be interested, less than a thousand individuals of this species were tallied. In fact, the total count of House Finches was almost as high as the total count of House Sparrows, a ratio that most of us that live in urban and suburban areas would not find surprising.

WINC — Wilmington, N.C. 34°08'N 77°53'W, as described Christmas '91, center Myrtle Grove Jct. Apr. 25; 5:00 a.m. to 7:00 p.m. Temp 62° to 83°F, Wind NW, 10–20 mph. Sunny, becoming partly cloudy late afternoon, 0.33 in rain.

Participants: Compiler—Kitty Kosh, 188 Lake Forest Pkwy, Wilmington, NC 28401; Mark Galizio, Steve Hambalek, John Hardwick, Angela Kosh, Kitty Kosh, Greg Massey, Jeremy Nance, Jane Ranney, Beth Wesley, Rachel Willow.

Compiler's comments: John Hardwick and Mark Galizio took a boat from Masonboro Inlet down the waterway to Orton Plantation. They saw the Purple Sandpipers on the jetty at the inlet, the Piping Plover on Masonboro Island. Hardwick saw the Merlin and both saw the Peregrine Falcon at close range near a dredge island. Both saw the Bald Eagle near Orton. They also saw the Vesper Sparrow on one of the dredge islands.

Greg Massey and Jeremy Nance saw the Great Cormorants at Masonboro Inlet late in the afternoon.

Kitty and Angela Kosh saw the female Rose-breasted Grosbeak and the Canada Warbler in Bellview Cemetery (17th & Princes Place Dr., several blocks from Oakdale.) about noon. Both species responded to a Screech-Owl tape. The yellow spectacles, yellow throat, breast and belly and black necklace on the breast were seen at about 25 feet at eye level for about 2 min on the Canada Warbler.

GVNC — Greenville, N.C. 35°35'N 77°14' W, as described Christmas '91, center jct. CR 1762 and SR 33. May 2; 5:15 a.m. to 9:30 p.m. Temp 56° to 77°F, Wind 10–15 mph in a.m., calm late p.m. Sky clear.

Participants: Compilers—John Wright, 1953A Quail Ridge Rd, Greenville, NC 27858 and Dr. Veronica Pantelidis, 106 Lakeview Dr. Greenville, NC 27858; Mary Atkeson, Larry Auld, Marie Britt, Eric Dean, Lorrayne Graff, Randy Holley, David Kaminski, Jill Kaminski, Nick Pantelidis, Jr., Veronica Pantelidis, Grace Smith, James Smith, Russ Tyndall, Howard Vainright, John Wright.

RVNC — Raven Rock State Park, N.C. 36°24'N 77°38'W, as described Christmas '91, center, bridge over Cape Fear River at Lillington. May 2, 5:40 a.m. to 8:00 p.m. Temp 48° to 90°F, Wind SW 0–10 mph, Sky fair.

Participants: Compiler—Paul C. Hart, Raven Rock State Park, Rt. 3, Box 1005, Lillington, NC 27546; David Brown, John Bumgarner, Susan Bumgarner, Paul Hart, Scott Hartley, Town Howard, Bobby Lufty, Larry Rose, Larry Rowland, Mary Stevens.

Compiler's comments: Paul Hart and David Brown heard the King Rail call in response to a Screech-Owl tape at a cattail marsh in an old sand and gravel pit 3 mi. S of Lillington. David Brown reported the Bald Eagle flying near the Wildlife Boating Access Area on the Cape Fear River near Lillington.

COSC — Columbia, S.C. 33°56'N 80°55'W, as described Christmas '91, center jct. Mill Creek and Southern Railroad, May 2, 6:00 a.m. to 6:30 p.m. Temp 60–85°F, Sky, partly cloudy.

Participants: Compiler—Robin Carter, 4165 E. Buchanan, Columbia, SC 29206; Molly Bonnell, Robin Carter, Caroline Eastman, Glenn Englehardt, Henry Fuseler, Tom Hankins, Dale Hutto, Miriam Rawl, Bruce Smart, Glenn Smith, Jack Stewart, Lula Stewart, Bob Wood, Ruthann Wooten.

RANC — Raleigh, N.C. 35°46'N 78°40'W, as described Christmas '91, center, Lake Wheeler Rd. and Norfolk & Southern RR. May 2, 5:00 a.m. to 9:00 p.m. Temp 53–86°F, Wind SW 10–25 mph, Sky clear.

Participants: Compiler—Bob Hader, 3313 Cheswick Drive, Raleigh, N.C. 27609; Halbert Carmichael, John Connors, Leigh DeNeef, Harry Fabert, John Finnegan, Bob Hader, Stephanie Horton, Will Kimler, Jim Mulholland, Clyde Smith, Jeff Walters.

DUNC — Durham, N.C. 36°09'N 78°52'W, as described Christmas '91, center one mile E and 1 mile N jct. Eno River & US 501, Apr. 26, 5:00 a.m. to 6:00 p.m. Temp 45–55°F, Wind N 5-15 mph, Sky clear in a.m. with increasing clouds throughout the afternoon.

Participants: Compiler—Michael Schultz, 5504 Woodberry Rd., Durham, NC 27707; Norm Budnitz, Anson Cooke, Kent Fiala, Steve Graves, Maurice Graves, Scott Hartley, Eleanor Holland, Ken Knapp, David Longley, Beth Morrison, Vaughn Morrison, C. J. Nelson, Len Pardue, Dorothy Rettig, Richard Rettig, Barbara Roth, Harriet Sato, Lois Schultz, Michael Schultz, Doug Shadwick, Edith Tatum.

Compiler's comments: Historically, when the calendar grants Durham a later count day, we get a much better showing of migrants and passerines. This year was no exception, as we turned in one of the best counts ever for these birds. Twenty-three species of warblers (topped by Kent Fiala's Wilson's Warbler, our first since 1974!) highlights one of the nicest lists of passerines ever found on a Durham count. Birds associated with the water, however, were another story. Falls Lake continues to be disappointing. Duck and shorebird numbers were dismal, more like pre-lake days than the record counts of the 80's. We have not seen a single diving bird (except cormorants) in three years, and even the ever increasing Ring-billed Gulls were in lower numbers than we have seen in years. Wood Ducks seem to be the only species benefiting from the lake, (and nest boxes). 46 was a new high count.

Two species were added to the list for the first time this spring. After many near misses, and stake-outs that wouldn't show up on count Day, Wild Turkeys joined us with a vengeance, four individuals were reported by three different parties! The other new bird came from Steve Graves, Doug Shadwick, and C.J. Nelson who watched a Black-billed Cuckoo, in their scope, eating caterpillars, for five minutes.

CPNC — Chapel Hill, N.C. 35°55'N 79°03'W, as described Christmas '91, center, intersection of Franklin and Columbia Sts in Chapel Hill. May 3, 5:30 a.m. to 6:00 p.m. Temp 65–85°F. Sky cloudy in a.m., clear in p.m.

Participants: Compiler—Anson Cooke, 1210 Huntsman Dr., Durham, NC 27713; B. Bomberg, A. Booth, S. Brackett, A. Broughton, N. Budnitz, H. Carmichael, C. Cook, A. Cooke, K. Cooke, W. Fang, K. Fiala, B. Fisher, P. Franklin, J. Garner, L. Garner, M. Graves, S. Graves, P. Haaland, S. Hale, C.

Hamilton, J. Hansen, W. Haywood, Pat. Hobson, Pete Hobsen, H. Hommersand, L. Houser, E. Kilgour, B. Leuchtenburg, H. Link, T. London, K. Lindstrom, J. McCoy, J. McLean, M. Nees, E. Pardue, L. Pardue, K. Powell, T. Plummer, A Reckhow, Z. Ralston, D. Rettig, R. Rettig, B. Roth, H. Sato, D. Shadwick, J. Shields, L. Schultz, M. Schultz, E. Spalt, D. Tinker, B. Wagstaff, W. Wood.

JLNC — Jordan Lake, N.C. 35°42'N 79°03'W, as described Christmas '91, center, jct. New Hope River & SR 1700, Chatham Co. (now under water). May 10, 4:45 a.m. to 8:15 p.m. Temp 45-75°F, Wind 5–12 mph, Sky clear to partly cloudy.

Participants: Compiler—Stephen Hall, 204 B Dairyland Rd., chapel Hill, NC. 27516; Barbara Beamon, Annie Leigh Broughton, Norm Budnitz, Pat Coin, Paul Conklin, Will cook, Anson Cooke, Claudia Egelhoff, Bryan Goldston, Steve Graves, Maurice Graves, Bob Hader, Stephen Hall, Carol Hamilton, Russell Herman, Denny Hood, Mary Johnson, Stephen Kahler, Raymond Kandt, James Keighton, John Kent, Ken Knapp, Tom Krakauer, Janet Krakauer, Winston Lancaster, Henry Link, Terry Logue, Becky Marty, Melinda Meade, Monica Nees, C.J. Nelson, Elizabeth Pendergraft, Richard Rettig, Dorothy Rettig, Barbara Roth, Larry Rowland, Kathy Rowland, Harriet Sato, Doug Shadwick, Julia Shields, Carol Tingley, Andy Upshaw, Lee Van Malssen..

Compiler's comments: The Wilson's Warbler was seen twice by Jim Keighton and the Krakauers at Ebeneezer Point where they also saw the Willow Flycatcher. Terry Logue reported another Wilson's Warbler at Polkberry Creek on Bynum Ridge Road. Logue also reported the Bachman's Sparrow on SR 1912 out of Merry Oaks. The Rettigs reported seeing the Common Tern at Poplar Point Recreation Area from a distance of about 200 feet. Andy Upshaw & Bryan Goldston reported the American Bittern at Wombles Creek and the Loggerhead Shrike about 1/4 mi E of Wombles Creek.

ALNC — Alamance County, N.C. 36°04'N 79°24'W, as described Christmas '91, center, Alamance County Courthouse, City of Graham. May 3, 6:00 a.m. to 7:00 p.m. Temp 63–83°F, Wind light, Sky alternating clouds and sun.

Participants: Compiler—Robert E. Mize, 1114 McPherson Rd., Burlington, NC 27215; John Alderman, Carolyn Allen, Don Allen, Ann Beckwith, Rick Brown, Rod Brown, Sheryl Brown, Thom Cox, Bill Larkin, Joshua Lobe, Jude Lobe, Bobby Mize, Lynn Moseley, Jim Thorsen, Laurie Wolf.

GRNC — Greensboro, N. C. 36°04'N 79°47'W, as described Christmas '91, center, jct. Pisgah Church Rd & US 220 N. May 2, 5:00 a.m. to 6:00 p.m. Temp 51–84°F, Wind SW at 9 mph in the a.m. to 13 mph in the p.m. Sky partly cloudy in the a.m. to clear in the p.m.

Participants: Compiler—Donald Allen, 2611 David Caldwell Drive, Greensboro, NC 27408; Carolyn Allen, Donald Allen, Dennis Burnette, Lynn Burnette, Nina Dameron, Peggy Ferebee, Bert Fisher, Delores Foutch, Wally Foutch, Stan Gilliam, Carol Harrison, Herb Hendrickson, Jeff Hole, Sally Howell, Mildred Kallenbach, Elizabeth Link, Henry Link, Jean McCoy, Roger

McNeill, Clarence Mattocks, Jim Mattocks, Lynn Moseley, Elizabeth Ogburn, Evelyn Schoonover, John Schoonover, Barbara Smith, Dick Smith, Tom Street, Ernest Swarts, Lucille Swarts, Kathy Treanor, Larry Treanor, Emily Tyler, Helen Zuk.

WSNC — Winston-Salem, N.C. 36°05'N 80°18'W, as described Christmas '91, center, jct. I-40 & Silas Creek Parkway. May 3, 4:30 a.m. to 7:00 p.m. Temp 66–83°F, trace of rain in a.m., Wind W at 10 mph. Sky cloudy in early a.m., sunny by mid-morning and onward.
Participants: Compiler—Hop Hopkins, 313 Susanna St., Kernersville, NC 27284; Kay Bergey, J.D. Bottoms, Todd Buchanan, Reggie Burt, Zack Bynum, John Carter, Lee Carter, Peg Cochrane, Marie Dantier, Doug DeNeve, David Disher, Susan Disher, Tom Echols, Marry Eriksen Charlie Frost, Toby Gordon, Bill Hammond, Susan Hammond, Jim Harrison, Bert Hollifield, Hop Hopkins, Bill Jackson, Brook Jackson, Lois Jones, Phillip Martin, Osborne Mauck, Hewson Michie, Ellen Milford, Teresa Milford, Susan Moore, George Morgan, Jeff Morgan, Margaret Morgan, Mary Morse, Tom Mowbray, Ed Mulvey, Margaret Mulvey, Ann Newsome, Elsie Orr, Barbara Page, Breed Poland, Ann Pollard, Edwin Poole, Paul Powers, Lloyd Ramsey, Jackie Shelton, Jerry Shiffert, David Shuford, Ramona Snavely, Paul Spain, Jim Spencer, Jack Stafford, Bobby Stockton, Gray Tuttle, Jay Wilhelmi Mark Wilson.

ICNC — Iredell County, N.C. 35°54'N 80°53'W, as described Christmas '91, center, Chipley Ford Rd bridge at South Yadkin River. May 3, 7:00 a.m. to 5:00 p.m.. Temp 60–84°F, Wind W at 10–15 mph. Sky partly cloudy in a.m. sunny in p.m.
Participants: Compiler—Sam Cathey, 130 Park St., Statesville, NC 28677; Penny Benbow, Sam Cathey, Lois Goforth, Thad Goforth, Steve Hedrick, Richard Holshouser, Larry Marlin, Joel McConnell, Sue McConnell, Dick Mize, Janice Powell, Garnet Underwood, Ron Underwood.

BRNC — Brevard, N. C. 35°11'N 82°41'W, as described Christmas '91, center, Rich Mountain Fire tower. May 2, 7:00 a.m. to 5:00 p.m. Temp 55–80°F, Wind 5-20 mph Sky clear.
Participants: Compiler—Norma Siebenheller, 187 Glen Cannon Dr., Pisgah Forest, NC 28768; Elaine Badger, Dorothy Bauer, Ruth Blanchard, Dick Blee, Sylvia Blee, Jack Bronson, Midge Bronson, Bernice Cross, Barbara Felty, Eloise Fenneberg, Mary Fortune, Kim Garrett, Jeanne Grimmenga, Lois Haskell, Ed Hathaway, Ruth Hathaway, Barbara Herzog, Paul Higby, Nancy Hill, Bill Hough, Jean Hough, Jack Hudson, Becky Huggins, John Huggins, Tom Joyce, Ruth Klock, Dennis Koskren, Eileen Lampe, Mary Ellen Lindley, Louise Mather, John Mather, Betty McIlwain, Erika Parmi, Miles Peelle, Ann Pitts, Irvin Pitts, Rita Roehr, Beth Rogers, Florence Rogers, Speed Rogers, Mary Sauerteig, Frank Schoff, Don Seriff, Bill Siebenheller, Norma Siebenheller, Scott Stegenga, Ginny Tener, Bill Thomas, Shirl Thomas, Dick Thorsell, Gladys Tietgen, Connie Updike, Laurie Wauchope, Beth Wheeler, Jennifer Wren.

Species	WINC	GVNC	RVNC	COSC	RANC	DUNC	CPNC	JLNC	ALNC	GRNC	WSNC	ICNC	BRNC	Total
Common Loon	28						2	2						32
Pied-billed Grebe	4	*									1		1	6
Horned Grebe	1													1
Northern Gannet	6													6
Brown Pelican	183													183
Great Cormorant	3													3
Dbl.-cr. Cormorant	466	9	5	7	1	245	92	142	13	9	4		16	1009
Anhinga	1			15										16
American Bittern								1						1
Least Bittern	1													1
Great Blue Heron	46	6	2	33	6	6	10	24	2	5	4	3	*	147
Great Egret	44	1		24				2						71
Snowy Egret	34													34
Little Blue Heron	31	1		7										39
Tricolored Heron	27													27
Cattle Egret	12	1	2	107		11				5				138
Green-backed Heron	12	2	7	13	11	12	15	24	2	13	8		1	120
Black-cr. Night-Heron	7													7
Yellow-cr. Night-Heron	11										2			13
White Ibis	22													22
Glossy Ibis	12													12
Canada Goose	6	3	9	15	22	23	103	9	29	227	185	24	36	691
Wood Duck	7	66	8	24	21	46	48	50	6	19	13	2	5	315
American Black Duck					2					*	2	1		5
Mallard	4	3	6	43	29	51	51	17	10	236	58	17	19	544
Blue-winged Teal	36				*			1			1			38
Ring-necked Duck		1								1	1		3	6
Lesser Scaup		1												1
Red-br. Merganser	14													14
Black Vulture		5		20		5	14	8	1	1			14	68
Turkey Vulture	8	35	7	12	3	18	71	114	13	36	18	16	44	395
Osprey	34	1	2	3	1	4	5	12	1	5	3		3	74

Species	WINC	GVNC	RVNC	COSC	RANC	DUNC	CPNC	JLNC	ALNC	GRNC	WSNC	ICNC	BRNC	Total
Mississippi Kite				10										10
Bald Eagle	1	3	1			1	7	5						18
Northern Harrier	1				1	1	1	1						5
Sharp-shinned Hawk					1	1	5	1	2		1	3	1	15
Cooper's Hawk		1	1	1	*		1	1	3	3	6	1		18
Accipiter sp.						1								1
Red-shouldered Hawk	1	3	7	5	11	3	25	22	1	4	1			83
Broad-winged Hawk			3			4	3	7	2	2	5	2	9	37
Red-tailed Hawk	12	23	23	7	12	28	29	31	14	19	15	6	6	225
American Kestrel	*				2	4	1		1	3	1		2	14
Merlin	1													1
Peregrine Falcon	1													1
Ruffed Grouse													2	2
Wild Turkey						4		1	*				2	7
Northern Bobwhite	1	17	13	13	16	15	19	38	7	18	13	9	6	185
Clapper Rail	13													13
King Rail	2		1											3
Virginia Rail					1									1
Sora	3													3
Common Moorhen	8													8
American Coot	1					1					3			5
Black-bld. Plover	196													196
Wilson's Plover	1													1
Semipalmated Plover	322							4			2			328
Piping Plover	1													1
Killdeer	30	21	24	16	23	26	33	32	30	42	26	12	5	320
Am. Oystercatcher	43													43
Greater Yellowlegs	40	1	2	2	2					1	1			49
Lesser Yellowlegs	36		3		3	2		6			17			67
Solitary Sandpiper	1		1	2	15	11	3	20	3	16	45	4	3	124
Willet	95													95
Spotted Sandpiper	9	3	3	8	6	21	10	70		10	19	2	8	169

Species	WINC	GVNC	RVNC	COSC	RANC	DUNC	CPNC	JLNC	ALNC	GRNC	WSNC	ICNC	BRNC	Total
Whimbrel	89													89
Marbled Godwit	38													38
Ruddy Turnstone	90													90
Sanderling	57													57
Semip. Sandpiper	46							6			*			52
Least Sandpiper	77	2			2			5			28			114
Pectoral Sandpiper		1		2							2			5
Purple Sandpiper	2													2
Dunlin	362													362
Stilt Sandpiper	1													
Sh.-billed Dowitcher	429													429
L.-billed Dowitcher	2													2
Common Snipe			1		3	3				1	1		1	10
Am. Woodcock										3	1			4
Laughing Gull	405													405
Bonaparte's Gull	11							3						14
Ring-billed Gull	272	13		81	20	150	24	282	2	112	40	1		997
Herring Gull	36							1						37
Gt. Blk-backed Gull	3													3
Gull-billed Tern	2													2
Caspian Tern	3				*			2						5
Royal Tern	141													141
Sandwich Tern	42													42
Common Tern	63							1						64
Forster's Tern	44									1				45
Least Tern	94													94
Black Skimmer	159													159
Rock Dove	65	12	17	175	88	46	83	19	39	93	61	7	25	730
Mourning Dove	95	191	176	259	136	192	379	243	123	242	270	202	136	2644
Black-billed Cuckoo						1						1		2
Yellow-billed Cuckoo	4	5	3	13	2		11	20	1	4	2	2		67
East. Screech-Owl	3	3	2	1	2	2		3	1		4		5	26

Species	WINC	GVNC	RVNC	COSC	RANC	DUNC	CPNC	JLNC	ALNC	GRNC	WSNC	ICNC	BRNC	Total
Gt. Horned Owl		4		1		2	3	3		3	7	3		26
Barred Owl	3	10	6	8	4	8	14	12	3	8		1	2	79
Common Nighthawk	7	4	1	2	7	2			1	2	25	2		53
Chuck-will's-widow	7	15	10		2			6			2	2		44
Whip-poor-will	8	9	13		*	5	22	19	1	4	3	8	2	94
Chimney Swift	56	50	82	52	52	276	293	206	81	154	186	106	52	1646
Ruby-thr. Hummingbird	5	13	13	12	7	13	51	17	6	6	12	13	44	212
Belted Kingfisher	1	1	5	4	11	8	16	10	2	16	14	8	7	103
Red-head. Woodpecker	10	3	2	23	3	3	22	19		13	4	2		104
Red-bel. Woodpecker	39	26	41	56	54	45	79	100	29	95	78	16	17	675
Yellow-bel. Sapsucker							2				3			5
Downy Woodpecker	11	8	15	4	18	16	49	26	5	29	20	6	25	232
Hairy Woodpecker	3				4	5	18	8	3	7	8	2	11	69
Northern Flicker	21	11	9	7	25	15	52	30	14	52	38	14	17	305
Pileated Woodpecker	4	9	3	9	3	3	18	19	1	1	5	4	57	136
Eastern Wood-Pewee	6	16	17	13	5	5	52	57	17	7	18	7	9	229
Acadian Flycatcher	10	27	24	18	21	2	81	36	4	2	4	2	4	235
Willow Flycatcher								1			4		1	6
Least Flycatcher							1	1						2
Eastern Phoebe		2	17		8	46	66	58	29	13	28	52	83	402
Gt. Crested Flycatcher	58	32	25	64	30	14	33	43	7	12	29	8	15	370
Eastern Kingbird	14	8	115	89	31	24	80	113	17	28	24	52	27	622
Horned Lark		2	2							6		3		13
Purple Martin	95	50	51	33	53	8	58	97	45	169	117	242	3	1021
Tree Swallow	43	2	10	8	1	43	1	32			3			143
N. Rough-w. Swallow	23	11	15	27	8	55	32	103	4	33	30	15	38	394
Bank Swallow			3					72						75
Cliff Swallow						10	4	50		1	2			67
Barn Swallow	107	50	140	43	23	307	88	333	51	110	101	119	153	1625
Blue Jay	54	57	88	41	44	122	160	112	64	214	173	78	136	1343
American Crow	19	69	68	79	77	93	268	235	53	203	103	135	258	1660
Fish Crow	130	15	5	19	16	2	6	7		2	*			202

Species	WINC	GVNC	RVNC	COSC	RANC	DUNC	CPNC	JLNC	ALNC	GRNC	WSNC	ICNC	BRNC	Total
Common Raven											2		1	3
Carolina Chickadee	33	41	48	119	53	138	261	189	49	139	135	36	125	1366
Tufted Titmouse	42	24	50	58	55	96	230	135	28	90	104	36	121	1069
Red-br. Nuthatch													1	1
White-br. Nuthatch	1	4		1	4	9	17	2	4	18	18	4	36	118
Brown-he. Nuthatch	26	1	8	19	6	4	37	36	9	26	16	1		189
Brown Creeper					2								1	3
Carolina Wren	41	62	66	67	104	133	318	173	50	188	163	30	110	1505
House Wren	1	1	1		10	9	38	5	8	20	20	8	9	130
Sedge Wren	2													2
Marsh Wren	3													3
Golden-cr. Kinglet						2					2		4	8
Ruby-cr. Kinglet				7	1	14	2	14	8	9	22	2	5	84
B-g. Gnatcatcher	36	55	68	47	58	195	268	186	31	56	68	12	36	1116
Eastern Bluebird	23	33	108	73	28	127	202	196	90	140	130	188	112	1450
Veery		1	2	1	8	2		1	1	5	7	2	1	31
Gray-cheek. Thrush					2						1			3
Swainson's Thrush			2	1	4	2	9	16	*	13	28	1	1	77
Hermit Thrush		1				2				1	2	4	1	11
Wood Thrush	17	40	29	15	32	36	140	81	33	87	46	12	40	608
American Robin	52	102	78	69	118	222	253	134	207	593	610	230	190	2858
Gray Catbird	21	15	35	20	41	34	72	74	15	54	36	17	28	462
No. Mockingbird	70	80	111	87	69	96	201	80	106	267	187	114	24	1492
Brown Thrasher	21	33	30	18	11	11	45	42	14	42	30	23	47	367
American Pipit		1												1
Cedar Waxwing	110	35	1	20	37	88	182	33	13	75	166	45	29	834
Loggerhead Shrike	1	6	5	27	1	1		1				3		45
European Starling	290	253	164	133	158	267	498	232	173	645	513	177	140	3643
White-eyed Vireo	40	31	41	22	39	60	64	58	10	12	6	1	15	399
Solitary Vireo				1	2	3	3	3			8		45	65
Yellow-thr. Vireo	6	6	1		6	10	30	18	3	2	7	3	3	95
Warbling Vireo					*						1			1

Species	WINC	GVNC	RVNC	COSC	RANC	DUNC	CPNC	JLNC	ALNC	GRNC	WSNC	ICNC	BRNC	Total
Philadelphia Vireo											*			0
Red-eyed Vireo	18	28	81	41	77	164	285	246	46	114	86	44	62	1292
Blue-winged Warbler					*	7	4	1	1		6	1	1	21
Golden-wi. Warbler					*						1			1
Tennessee Warbler											*			0
Northern Parula	32	17	30	41	27	58	106	74	8	12	15	4	55	479
Yellow Warbler		3	1	2	6	15	10	29	4	10	50	7	16	153
Chestnut-sided Warbler				1	*	2	3	6	1	5	27	1	16	62
Magnolia Warbler				1	*		3	5		*	12	1		22
Cape May Warbler					1	1	4	3	1	6	35	11	10	72
Blk-thr. Blue Warbler	5	4	9	8	11	10	29	45	2	17	21	4	39	204
Yellow-rump. Warbler	273	134	30	65	160	535	325	340	75	171	223	59	63	2453
Blk-thr. Green Warbler						1	3	8		1	17	3	10	43
Blackburnian Warbler		1					2	5			6	1	3	18
Yellow-thr. Warbler	19	9	24	8	10	29	42	53	2		9		1	206
Pine Warbler	33	12	74	45	41	71	122	227	10	52	32	10	2	731
Prairie Warbler	7	14	25	5	4	26	55	81	1	2		2		222
Palm Warbler			1			15	2	9			1	3	24	55
Bay-breasted Warbler							2	2			4			8
Blackpoll Warbler		1		3				2		1	8	2	5	22
Cerulean Warbler										*				0
Blk-and-white Warbler	2	12	27	4	8	25	24	44	1	5	35	6	56	249
American Redstart			9	9	12	24	46	89	1	9	16	5	4	224
Prothonotary Warbler	22	41	22	25	5	4	39	19	1	4	3			185
Worm-eating Warbler		2	3		1	1		5		2	1		21	36
Swainson's Warbler		4		2									2	8
Ovenbird	*	20	37	3	26	31	73	101	10	15	3	1	74	394
Northern Waterthrush	2	3	1	3	1	2	2	2		*	2		1	19
Louisiana Waterthrush		8	8		3	8	15	7	1		3		4	57
Kentucky Warbler		7	5	7	2		17	3			1		3	45
Common Yellowthroat	22	24	72	14	61	75	145	105	16	42	19	7	31	633
Hooded Warbler	3	8	29	10	4	30	65	46	1	3	2		91	292

Species	WINC	GVNC	RVNC	COSC	RANC	DUNC	CPNC	JLNC	ALNC	GRNC	WSNC	ICNC	BRNC	Total
Wilson's Warbler						1		2						3
Canada Warbler	1		*					3		2	3	3	1	13
Yellow-br. Chat	7	13	21	21	20	36	82	78	3	15	7	27	5	335
Summer Tanager	17	15	37	26	25	15	75	102	13	8	7	2	*	342
Scarlet Tanager	*	2	5	2	14	15	71	51	19	30	44	5	66	324
Northern Cardinal	89	87	114	93	103	175	485	246	106	333	255	113	178	2377
Rose-br. Grosbeak	1		1	1	4	1	3	14	1	8	44	2	10	90
Blue Grosbeak	8	53	50	10	15	28	48	78	21	13	10	31	2	367
Indigo Bunting	30	54	74	44	37	23	223	218	54	98	90	74	38	1057
Painted Bunting	12			1										13
Rufous-sided Towhee	19	14	30	27	48	105	163	113	34	89	70	21	190	923
Bachman's Sparrow	2							2						4
Chipping Sparrow	6	20	88	12	30	84	108	145	21	69	58	29	76	746
Field Sparrow		30	63	6	41	72	65	42	23	52	19	37	19	469
Vesper Sparrow	1													1
Savannah Sparrow	11	1	6		15	26	1	4		5	8		10	87
Grasshopper Sparrow		3	5		3	12	4	3	4	9	9	23	1	76
Henslow's Sparrow		1												1
Sharp-tailed Sparrow	9													9
Seaside Sparrow	4													4
Song Sparrow		1	21		25	22	8	4	21	114	113	12	201	542
Swamp Sparrow	11	1	2	2	8	20	11	6	2			2	1	66
White-thr. Sparrow	33	19	16	16	65	172	105	17	9	131	73	14	36	706
White-cr. Sparrow		2			2	1			2		2		2	11
Dark-eyed Junco			2		5			1			2		6	16
Bobolink	30	62	300	15	36	37	153	13	1	3	6	63	3	722
Red-wing. Blackbird	457	62	92	144	70	240	146	200	31	104	131	39	68	1784
Eastern Meadowlark	4	50	37	32	37	105	79	83	43	51	88	148	43	800
Boat-tailed Grackle	625													625
Common Grackle	180	295	87	227	165	314	382	421	248	566	536	289	169	3879
Br.-headed Cowbird	14	64	17	46	47	75	97	83	34	54	65	17	13	626
Orchard Oriole	19	39	23	41	7	41	15	40	5	7	15	6	1	259

Species	WINC	GVNC	RVNC	COSC	RANC	DUNC	CPNC	JLNC	ALNC	GRNC	WSNC	ICNC	BRNC	Total
Northern Oriole		3		1	1	2	3	5	1	7	34	2	1	60
Purple Finch						2	5		5		*	5	8	25
House Finch	6	18	12	43	108	47	169	45	20	113	201	31	54	867
Pine Siskin													52	52
American Goldfinch	11	34	38	54	94	234	352	221	78	279	200	50	253	1898
House Sparrow	47	252	65	41	48	61	103	50	30	90	59	58	26	930
No. of species	161	122	115	113	122	130	124	145	107	118	143	111	123	229
No. of individuals	8176	3310	3651	3537	3331	6731	9863	8611	2606	7524	7020	3439	4566	72364
Total Field Hours	51	37	54	36	44	85	159	139.8	45.5	107	126	37.5	79.5	1001
Hours on foot	29.5	23.5	33.5	21	38.5	61	125	117.8	12.5	48.5	105	14	44.5	674
Hours by car	14.5	13.5	20.5	15	5.5	24	34	22.0	33.0	58.5	21	23.5	35	320
Hours by boat	7													7
Hours Owling	0	2	1.5	0.5	3	1	1	4.8		1.5	3			18.3
Total Field miles	261	312	311.5	166	90	321	411	335.8	254.0	513.5	210	226	231	3643
Miles on foot	15	15	21.5	16	31	49	83	85.0	17	30.5	70	14	47	494
Miles by car	214	297	290	150	59	272	328	250.8	237.0	483.0	140	212.0	184	3117
Miles by boat	25													25
Miles Owling	0	19	0.75	0.5	2	5	2	3		30.0	20			82.3
Date	25 Apr	2 May	2 May	2 May	2 May	26Apr	3 May	10 May	3 May	2 May	3 May	3 May	2 May	

General Field Notes

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NOTICE

Publication of any unusual sightings of birds in the Field Notes or Briefs for the Files does not imply that these reports have been accepted into the official Checklist of Birds records for either North or South Carolina. Decisions regarding the official Checklists are made by the respective State Records Committees and will be reported upon periodically in THE CHAT.

Scarlet Tanager Nest in Richland County, S.C.

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On 14 June 1992, as I was driving home I spotted an adult male Scarlet Tanager (*Piranga olivacea*) that was flying down a driveway in my neighborhood of the Lake Ashely subdivision of northern Richland County, South Carolina. This subdivision, less than 1 km from the Fairfield County line, is about 4 km north of the Fall Line and within 1 km of the northern edge of the Sandhills. The area is a mixed hardwood-pine forest with most lots in a natural state and some shrubs. I returned to the area 10 minutes later and played a tape recording of a Scarlet Tanager song. A female Scarlet Tanager appeared within seconds, but the male did not respond.

An hour later, I went onto my neighbor's property (110 Michael Rd., Blythewood, SC) and found the nest. The nest was 10–15 m high in a 1.3 m dbh Post Oak (*Quercus stellata*), about 1 m from the end of the branch and 5 m from the trunk. While the nest was largely obscured by leaves and branches at the time, observations in January 1993, showed that it was 8–10 cm in diameter, made from very small twigs woven in a rough circle. My angle of view prevented me from discerning its depth. The nest was about 10 m from the house, and there was a 3 m taller White Oak (*Q. alba*) 7 m from the nest tree and 10 m farther from the house. The male and female visited the nest singly and together over the next hour, feeding two downy young. I was unable to photograph the young in the nest, but they were clearly visible with binoculars.

The male was in full alternate plumage but seemed to have a small indistinct wing bar, a feature not shown in any of my field guides. The bill appeared to be smaller and less yellow than that of a Summer Tanager (*Piranga rubra*). The tail and wings of the female appeared darker than those of a female Summer Tanager.

According to Post and Gauthreaux (1989, Contr. Charleston Museum XVIII), this is the first documented nesting record of Scarlet Tanager in the Lower Piedmont of South Carolina. They consider this species to be fairly common during the breeding season in the Upper Piedmont and Mountains, although few nesting records exist. This tanager is probably a more common breeder in the Lower Piedmont than this single record indicates as there are at least 8 records of singing males in appropriate habitat and season during 1984–92. A more comprehensive search during summer should provide additional information on the breeding status and distribution of this species in the Lower Piedmont of South Carolina.

Pine Siskin Nesting in the Southern Blue Ridge Mountain Province

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The Pine Siskin (*Carduelis pinus*) is an erratic resident in the Blue Ridge Mountain Province of the southern Appalachians (Simpson 1992), where the species has been reported intermittently since the late 19th Century. In June 1885, Brewster (1886) noted singing birds in forests of Fraser fir (*Abies fraseri*) and red spruce (*Picea rubens*) in the high elevations of North Carolina's Black Mountains, where Cairns (1889) later recorded the species as resident but gave no details to document breeding.

Subsequently, a number of observers have presented data suggestive of nesting at various localities within the southern Blue Ridge Province. From a series in the United States National Museum, Wetmore (1939) described a "young female barely grown" that was taken at 823 m (2,700 ft.) on 2 July 1932 near Cosby, Tenn., in Great Smoky Mountains National Park. Stupka (1963) observed 3 siskins that he believed were recently fledged birds at Indian Gap, el. 1605 m (5266 ft.), in the Great Smoky Mountains on 13 June 1938. Williams (1987) reported what was believed to be a flightless Pine Siskin chick at Asheville, el. 670 m (2,200 ft.) in Buncombe County, N.C., on 7 June 1982, but gave few details.

McNair (1988) observed courtship behavior by several pairs in the Black Mountains, Yancey County, N.C. and described nest construction by a female siskin on the NE slope of Mt. Mitchell, just below the summit at 1962 m (6,438 ft.) elevation, on 2 June 1986, in an open forest of Fraser fir. This nest was abandoned within 6 days, however, and McNair did not observe evidence of egg-laying or incubation. Most recently, Siebenheller and Siebenheller (1992) monitored nest construction and apparent incubation by Pine Siskins in a hemlock (*Tsuga* sp.) at 808 m (2,650 ft.) elevation in SE Transylvania County, N.C., from 12 April to 23 April 1991. the presence of eggs or young could not be verified, and the nest was abandoned during the period of observation. Although strongly suggestive of breeding, none of these previous reports includes direct observation of a nest containing eggs or young.

At 0900 on 14 June 1992, I discovered an active nest of Pine Siskins at an elevation of 1768 m (5,800 ft.) on the south slope of the main ridge line of the Plott Balsam Mountains, Jackson County, N.C., between Browning Knob and Mt. Lyn Lowry. The habitat was an open, disturbed, second-growth Fraser fir-red spruce forest about 30 m below the ridge crest on a steep, rocky slope. The nest was placed 8.5 m (28 ft.) above the ground in a red spruce that was 18 m (60 ft.) tall. The compact nest was in very dense foliage 2.5 m from the trunk and 0.3 m from the end of a horizontal branch. During a 2-hour period of observation, an adult male repeatedly visited the nest carrying food to 2 nestlings, whose heads were visible above the nest rim when the adult landed at the site.

On the mourning of 17 June, I returned and again observed the male carrying food to the 2 noisy young. On some occasions, the male was accompanied by a female, but on most visits the male was alone. The male was often noted to be carrying insects to the young. Although siskin nesting is frequently correlated with the availability of seed crops, the fir and spruce in the high Plott Balsams had essentially no cone crop at that time.

Because this remote site and the access routes were on posted land, it was not possible to arrange additional visits to determine whether the young were successfully fledged. Nevertheless, this appears to be the first documented report from the southern Blue Ridge Mountain Province of a Pine Siskin nest containing either eggs or young. This represents an extension of the verified breeding range of the Pine Siskin southward down the Appalachian chain from Pennsylvania (American Ornithologists' Union 1983) and the south-central Alleghanies (Kain 1987, George A. Hall pers. comm.) to southwestern North Carolina.

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December Sight Record of Sooty Shearwater in South Carolina

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I observed a Sooty Shearwater (*Puffinus griseus*) for 45 sec when it flew parallel to shore one km off North Folly Beach, Charleston County, South Carolina at 0815 hr on 3 December 1990. The sooty body coloration, rather large and slender size, long slender straight wings which were held rigidly in flight, and short rounded tail were distinctive. In a steady 40 km SE-S wind, the shearwater's arcing flight was also distinctive; the bird rose as high as 2-3 degrees above the horizon. These characteristics, except for body size, distinguish the Sooty Shearwater from any large dark *Pterodroma* petrel (Bailey et al. 1989). I never saw the shearwater flap its wings, nor did I see any apparent evidence of wing molt. The bird was flying north, in the appropriate migratory direction for the Sooty Shearwater at this season, though this may have been the result of the prevailing wind direction and storm conditions. Most seabirds, primarily Northern Gannets (*Morus bassanus*) and Double-crested Cormorants (*Phalacrocorax auritus*) were also flying north, an inappropriate migratory direction for them at this season.

The Sooty Shearwater is a rare to uncommon visitor offshore and the most likely shearwater seen onshore in the southeastern Atlantic States from May through July, peaking in late May and early June (Clapp et al. 1982, Lee 1986, Lee and Booth 1979, Post and Gauthreaux 1989). The Sooty Shearwater becomes much scarcer by September with few sight reports afterwards north of Florida (Clapp et al. 1982, Lee 1986, Lee and Booth 1979). In South Carolina, only one prior post-September report exists (few details) (*in* Clapp et al. 1982; ChM files; D. Forsythe, *in litt.*). T. Dobbs (*not* J.B. Kelley) saw one, possibly as many as three Sooty Shearwaters 19 km off Charleston on 13 (*not* 10) November 1972; this observation is probably correct (D. Forsythe, *in litt.*). While my record described herein was not verified nor confirmed, it is the first documented sight record of a Sooty Shearwater on a highly unusual out-of-season date in the Carolinas.

Acknowledgments. I thank D. Forsythe for providing unpublished information and for reviewing this note.

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Breeding Status of the Black-throated Blue Warbler in the Mountain Bridge Wilderness Area, South Carolina

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The Cairn's Warbler (*Dendroica caerulescens cairnsi*) is the local race of the Black-throated Blue Warbler that breeds in the southern Appalachians. This race was named by Dr. E. Coues in 1897 in honor of J.S. Cairns who first described it from the North Carolina mountains (cited in Bent 1953). Although similar to the northern race, *D. c. caerulescens*, the Cairn's Warbler is distinguishable by several characteristics, most notably the presence of black mottling on the male's back. Its breeding range extends from northern Maryland and central Pennsylvania south through the mountains of northern Georgia and northwestern South Carolina (Sprunt and Chamberlain 1949).

The Black-throated Blue Warbler is considered to be fairly common above 800 m but no nest has been reported in the state (Post and Gauthreaux 1989). On 26 June 1934 Hudson and Sherman (1936) discovered birds on Sassafras Mountain near the North Carolina line and reportedly took a juvenile male at that location. However, because of the close proximity to the North Carolina line and the unknown location of the specimen, this breeding record has not been accepted (Post and Gauthreaux 1989).

Prior to 1936, information concerning the status of *D. c. cairnsi* in South Carolina is scarce. Loomis (1890, 1891) apparently did not encounter this bird during his work in the South Carolina mountains, as he does not include it in his accounts. A.T. Wayne (1910) regarded this species as a transient of the state and further added that "it breeds in the higher mountains of North

Carolina". Chamberlain and Coleman reportedly took males from Caesars Head on 16 and 18 July 1927 and Chamberlain reported breeding in Pickens County in 1934 (cited in Sprunt and Chamberlain 1949). However, no other details are provided.

It appears this warbler was either largely overlooked by early observers as a breeding bird in South Carolina or its population has increased since that time. It now occurs in several mountainous regions of the state during the summer months and is considered fairly common above 800 m (Post and Gauthreaux 1989). Nevertheless, its status as a summer resident has been poorly documented.

This report documents the habits and breeding status of *D. c. cairnsi* in the Mountain Bridge Wilderness and Recreation Area. This state-owned property is located in northern Greenville County, South Carolina and contains over 4,800 hectares of contiguous mountain habitat including Caesars Head State Park, Jones Gap State Park and several Heritage Trust Preserves. Form 1984 through 1989 I served as park naturalist at Caesars Head State Park and kept notes on the bird life of that area. Information in this report is derived from my recorded personal observations.

In these mountains at elevations above 800 m, *D.c. cairnsi* occurs most often in heavily wooded ravines along streams, seepages and river forests. Favorite habitats include wet, shady situations with thick stands of rhododendron (*Rhododendron* sp.), Leucothoe (*Leucothoe axillaris*) or other dense undergrowth. This warbler tends to be somewhat gregarious, with several or more pairs occurring in suitable habitats.

Thick forested areas along upper Matthews Creek, Julian Creek and their tributaries in the Watson Heritage Preserve harbored the largest populations of this wood warbler. It was also fairly common along the Middle Saluda River and its tributaries in upper Jones Gap. I encountered summering Black-throated Blue Warblers at Caesars Head State Park in other scattered locations above 760 m including the Raven Cliff Falls Trail, along the Coldspring Branch, a major tributary of the upper Middle Saluda, and near the Caesars Head Park Headquarters.

On 20 July 1985 I saw 3 well-feathered juvenile Black-throated Blue Warblers with an adult female along the Raven Cliff Falls Trail (880 m). The young were located in a Rosebay (*Rhododendron maximum*) thicket bordering a small stream along a mature hardwood slope. This was near the present day well house.

On 9 June 1986 I saw an adult male feeding a recently fledged young near the upper Jones Gap Trail (790 m). This was in a heavily forested ravine with Yellow Birch (*Betula lenta*) and Eastern Hemlock (*Tsuga canadensis*) prevalent. The fledgling appeared to be just out of the nest and was found in a Rosebay rhododendron thicket. I watched the male forage through the under story, gathering green caterpillars to feed the young. He sang while carrying food. When I approached the fledgling, the male immediately became excited and flew closer, raised his wings and fluttered them conspicuously while uttering a sharp "chwee!" call. During this distraction display the white wing spots of the adult were quite visible.

I found fledged young on one other occasion. On 5 July 1988 I saw an adult female feeding a well-feathered juvenile in a rhododendron thicket bordering a

small stream along a steep, wooded ravine along the Rim of the Gap Trail near Caesars Head (870 m). This young appeared to have been out of the nest for at least two weeks.

On 14 June 1989 I saw a female Black-throated Blue Warbler gathering spider webs and building a nest along the Jones Gap Trail near the headwaters of the Middle Saluda River. This was located at an elevation of 854 m and about 920 m from the North Carolina line. The nest was just started and placed in a rhododendron thicket. The male accompanied the female while she gathered nesting material, but did not assist. The nest was completed in 4 days. Harrison (1975) also stated that nest building usually takes 4 days. On 18 June, it contained 1 egg.

The nest was located in a leaf clump on the outer fork of a Rosebay Rhododendron that grew along a steep bank 1.2 m from the Middle Saluda River. It was 2.7 m from the Jones Gap Trail and placed 91 cm above ground. It was also located 51 cm from the main trunk and 16 cm inward from the branch tip. The nest was concealed from above by overhanging rhododendron leaves.

The forest was relatively open, but a dense understory was present. A power line clearing was located about 8 m away. Dominant canopy species included Eastern Hemlock, Umbrella Tree (*Magnolia fraseri*), Tulip Tree (*Liriodendron tulipifera*), Red Maple (*Acer rubrum*), Sourwood (*Oxydendrum arboreum*), Northern Red Oak (*Quercus rubra*), and White Oak (*Q. alba*).

The understory consisted of Rosebay, Sweet Pepperbush (*Clethra acuminata*), Witch Hazel (*Hamamelis virginiana*), Sassafras (*Sassafras albidum*), Leucothoe, Sweet Shrub (*Calycanthus floridus*), Mountain Laurel (*Kalmia latifolia*) and tangles of Greenbriar (*Smilax* sp.).

The outer nest wall was neatly rounded and built mostly with rhododendron bark strips. Other materials included dried grasses and weed stems. The inside cup was lined with fine black rootlets, fine bark strips, grasses and some animal hair. Cairns (cited in Bent 1953) stated that "the nest's interior is neatly lined with hair-like moss, resembling fine, black rootlets." the nest's outside diameter was 6.5 cm and its height 5.8 cm. The inside diameter was 5 cm and the depth was 4.5 cm. The nest was wrapped and attached to the branch fork with spider web.

The total clutch size was 3 and incubation began on 21 June. Incubation was mostly, if not entirely, by the female. The male was usually located singing nearby. The incubation period lasted 12 days and hatching occurred on 2 July. Harrison (1975) stated that incubation is by the female and lasts 11-13 days, typically 12.

Both adults fed the young, particularly small caterpillars. The adults gathered food most actively in the morning, often at frequent intervals. H. Mousley (cited in Harrison 1984) remarked on feeding frequency of this species in Quebec. He stated that during one period the female was observed feeding nestlings on the average every 2.4 min. and added that feeding was predominately by the female. In the South Carolina nest the male actively participated in feeding the young. During one active feeding period on 7 July I saw the male bring food to the nest every 5 to 10 minutes. Between foraging there was normally a period of inactivity, particularly in mid-afternoon.

The young fledged on 12 July, 10 days after hatching. They moved to a nearby brush pile with greenbriar tangles and remained there for the next several days. The male continued to actively feed the young. When I disturbed the nest or approached the fledged young, the female frequently gave a thin, musical "tseet" which apparently was an alarm note. Another call, given by both adults, was a flat, sharp "chwee!". The a male sometimes gave a junco-like "thit" while near the nest. No distraction display was observed.

The male sang diligently throughout the nesting period into mid July. He frequently sang near the nest and sometimes while gathering food for the young. Other territorial males were heard singing nearby. A typical rendition of the male's song can be described as a lazy, drawling "zroo zroo zroo zreeeee". These phrases were sometimes shortened to "zroo zroo zreeeee" or "zroo zreeeee".

Territorial male Black-throated Blue Warblers ordinarily arrive in these mountains by mid April, ahead of the main spring passage of migrants. Two singing males observed in Jones Gap on 14 April 1988 represent the early arrival date. Referring to *D. c. cairnsi*, J.S. Cairns stated that "they arrive from the south nearly 10 days earlier than those that pass through the valleys..." (cited in Bent 1953). During the peak of spring migration in late April and early May, this species was quite common. On 9 May 1987 I found 24 singing males along a stretch of Matthews Creek on the Watson Heritage Preserve. Most appeared to have been on territory.

My observations indicate that the 1989 nesting occurrence was largely consistent with previous documented breeding habits of this species. Considering this, the 9 June 1986 record suggests that nesting began in mid May. My observations also indicate that , in these mountains, the time of nesting varies. The disparity in dates might suggest that two broods are possibly reared. Furthermore, *D. c. cairnsi* seemed to show a decided preference for rhododendrons when nesting.

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BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(all dates 1992 unless otherwise indicated)

PIED-BILLED GREBE: A rare breeding report for the piedmont was a pair of grebes that nested at an industrial pond at Simpsonville, S.C., during the spring (Peter Worthington).

HORNED GREBE: Steve Dinsmore observed one from 13 May into June south of Stacy, Carteret County, N.C.

RED-NECKED GREBE: Two were noted, 1/4-mile apart, in the surf at North Topsail Beach, N.C., on 4 March by Gilbert Grant.

EARED GREBE: One, mostly in basic plumage, was observed by Steve Dinsmore on 3 March in the surf north of Avon, N.C. Another was seen, in full breeding plumage, from April through 1 May at Goldsboro, N.C., by Eric Dean.

NORTHERN FULMAR: This species is apparently regular well off the North Carolina coast in March and April. A total of eight seen on 1 May by John Arvin and party, in the Gulf Stream off Oregon Inlet, N.C., was thus not overly surprising.

CAPE VERDE PETREL: One individual of this form, considered by many authorities to be a valid species within the Soft-plumaged Petrel complex, was seen and photographed by a group of 25 birders (Mike Tove, Harry LeGrand, Ricky Davis, Brian Patteson, and others) east of Cape Hatteras, N.C., on 24 May. Full details have been submitted to a national journal.

CORY'S SHEARWATER: Uncommon from shore were one seen from Pawleys Island, S.C., on 7 May (Bill Pulliam) and two seen from Cape Hatteras point, N.C., on 23 May (Mike Tove et al.).

SOOTY SHEARWATER: Notable onshore counts of northbound migrants were 233 tallied by Mike Tove, Harry LeGrand, Todd Hass, and others at Cape Hatteras point, N.C., in 3.5 hours on 23 May; 22 counted by Steve Dinsmore at North Core Banks, N.C., in one hour on 20 May; and one seen by Bill Pulliam from Pawleys Island, S.C., on 29 May.

MANX SHEARWATER: The individual seen by Ned Brinkley on the 22 May pelagic trip off Oregon Inlet (see Table) was only a mile or two off that inlet and was quite late for the species. [This is a "cold" water species seldom present in the warm waters of the Gulf Stream; however, the confusingly similar Audubon's Shearwater, found primarily in the Gulf Stream, does occur in waters inshore of the Gulf Stream and is occasionally seen from shore.—HEL]

WILSON'S STORM-PETREL: Observations from shore included one from North Core Banks, N.C., on 29 April (Steve Dinsmore); three from Pawleys Island, S.C., on 7 May (Bill Pulliam); and 17 from Cape Hatteras point on 23 May (Mike Tove et al.).

LEACH'S STORM-PETREL: Four were seen from shore at Cape Hatteras point on 23 May by Mike Tove and others, and rare for South Carolina was one seen about 52 miles east-northeast of Charleston on 1 June by Nathan Dias and Jack Peachey.

PELAGIC OBSERVATIONS IN THE GULF STREAM OF NORTH CAROLINA: The following totals were made in May. The letter is the location and observers, and the number in the table heading is the date in May. The asterisk indicates the species was seen, but no numbers were tallied.

A	off Oregon Inlet (John Arvin party)
B	off Oregon Inlet (Mike Tove, Harry LeGrand, and party)
C	off Oregon Inlet (Ned Brinkley party)
D	off Oregon Inlet (Ned Brinkley party)
E	off Hatteras Inlet (Mike Tove, Harry LeGrand, and party)
F	off Oregon Inlet (Merrill Lynch, Derb Carter)

	A	B	C	D	E	F
	1	16	22	23	24	31
Northern Fulmar	8		1			
Black-capped Petrel	12	14	1	31	18	8
Cape Verde Petrel					1	
Cory's Shearwater		33	35	8	16	350
Greater Shearwater			13	2	1	9
Sooty Shearwater		8	17	20	52	3
Manx Shearwater			1			
Audubon's Shearwater		17			5	10
Wilson's Storm-Petrel	100	354	172	145	147	45
Leach's Storm-Petrel	1	2	1			7
Northern Gannet	30	47	1	1	7	3
White-tailed Tropicbird		1				1
Red-necked Phalarope		46	66		10	6
Red Phalarope	50		1			
South Polar Skua			5	2	1	
Pomarine Jaeger	25	19	2	5	22	10
Parasitic Jaeger		2	2	5	3	12
Long-tailed Jaeger		3	4	1	2	
Black-legged Kittiwake			1			
Common Tern	*	105	119	10	66	5
Arctic Tern		5	27	1	27	8
Common/Arctic tern sp.?			131	59	40	
Roseate Tern		1	7			
Sooty Tern		2			1	1
Bridled Tern		2	18		1	6
Black Tern		2			6	

BAND-RUMPED STORM-PETREL: Seldom if ever previously seen from shore alive, at least one was seen by Mike Tove and Todd Hass over the surf at Cape Hatteras point on 23 May.

WHITE-TAILED TROPICBIRD: An adult seen off Oregon Inlet on 16 May by Mike Tove and 20+ other birders was one of the earliest records for North Carolina. Notable for South Carolina were two seen off Charleston on 1 June by Nathan Dias and Jack Peachey.

MASKED BOOBY: Always a good find on a pelagic trip, a booby in sub-adult plumage off Charleston was seen on 16 May by Steve Patterson and Irvin Pitts.

NORTHERN GANNET: John Fussell estimated that 7000 gannets migrated past Atlantic Beach, N.C., in three hours on 12 April. At Pawleys Island, S.C., Bill Pulliam counted 162 gannets flying south on 7 May, and he observed five on 28 May and two on 29 May. Mike Tove, Harry LeGrand, and Todd Hass had a tally of 150 gannets on the late date of 23 May at Cape Hatteras point.

AMERICAN WHITE PELICAN: The only spring report was one seen on 22 March at Hatteras Inlet, N.C., by Steve Dinsmore.

BROWN PELICAN: Howard Vainwright noted from one to four birds at a sandpit pond north of Grimesland, N.C., from 1 to 20 March; and Russ Tyndall, John Wright, and Paula Wright saw one there on 28 March.

GREAT CORMORANT: Four birds, including an adult in breeding plumage, were seen at Huntington Beach SP, S.C., on 5 May (Bill Pulliam), and one was still there on 16 May (Nathan Dias, Jack Peachey). In North Carolina, Steve Dinsmore observed two immatures on 6 March at the Cedar Island ferry terminal, an immature on 10 April near Atlantic, and an adult on 15 May west of Ocracoke.

DOUBLE-CRESTED CORMORANT: Notable for Ashe County, N.C., was one seen on 31 May on the North Fork New River by Eric Dean.

MAGNIFICENT FRIGATEBIRD: Rare and extraordinarily early was a well-described immature seen soaring over the end of a jetty at Huntington Beach SP on 15 March by Nathan Dias, Perry Nugent, Edwin Blitch, and Ann Peterson.

REDDISH EGRET: A year-old bird was rare and early at the south side of New Drum Inlet, N.C., from 16 to 31 May, as seen by Steve Dinsmore and Jeremy Nance.

YELLOW-CROWNED NIGHT-HERON: Two adults were present at a nest in a backyard of a home in Charlotte, N.C., for several weeks in May (Kevin Hennings, Katherine Higgins), providing a rare piedmont breeding record. Eric Dean saw a bird in eastern Johnston County, N.C., on 3 May; nesting of the species is possible in the Neuse River floodplain there.

GLOSSY IBIS: Single individuals were rare inland visitors in North Carolina at Greenville on 17 April (Russ Tyndall, Howard Vainwright), at Goldsboro on 23 April (Eric Dean), and near Scotland Neck on 16 May (Ricky Davis).

TUNDRA SWAN: Locally rare was a swan seen at a New Bern, N.C., quarry on 30 April by Rich Boyd, Bob Holmes, and Wade Fuller.

BRANT: A notable count for 15 May was 23 birds seen by Steve Dinsmore west of Ocracoke.

EURASIAN WIGEON: Records of male wigeons for the spring were from Huntington Beach SP on 8 March (Heathy Walker, Harriett Whitsett) and 15 March (Lex Glover); from Pea Island, N.C., on 22 March (Steve Dinsmore); and from Bodie Island, N.C., on the very late dates of 14 to 22 May (Rick Knight, Steve Strickland, Mike Tove, et al.).

RING-NECKED DUCK: Females lingered at Greenville, N.C., to at least 27 May (Howard Vainwright) and at Goldsboro through 31 May (Eric Dean).

COMMON EIDER: The two immature males seen at jetties at Wrightsville Beach, N.C., during the winter remained through 5 April, when noted by Jeremy Nance and Steve Dinsmore. An immature male was late on 18 April, when seen by John and Paula Wright at the Cedar Island ferry terminal.

KING EIDER: A good find were an immature male and a female at the Wrightsville Beach jetties on 15 March (Jeremy Nance, Steve Dinsmore).

HOODED MERGANSER: Mark Thompson found a nest of mergansers in a Wood Duck box along the Neuse River about 6 miles southeast of Smithfield, N.C. He saw a female, as well as eight eggs in the box, on several dates beginning in late March.

BLACK VULTURE: Scott Hartley noted a nest of the species in an old house at Eno River SP, N.C.; two young were seen on 26 April.

AMERICAN SWALLOW-TAILED KITE: Migrants were seen on the Outer Banks of North Carolina at Avon on 8 April (Marcia Lyons) and 6 miles south of Salvo on 14 May (Rick Knight).

MISSISSIPPI KITE: Eric Dean saw one on 26 April along the Neuse River in eastern Johnston County, N.C. There appears to be suitable breeding habitat in that river's floodplain.

NORTHERN HARRIER: Simon Thompson noted a late migrant at Hendersonville, N.C., on 20 May, and Steve Dinsmore observed pairs at Portsmouth Island on 22 May and at northern Core Banks on 24 May.

BROAD-WINGED HAWK: On the Outer Banks, where rare as a migrant, a kettle of eight birds was seen at Bodie Island on 14 May by Rick Knight, and one was noted at northern Core Banks on 24 May by Steve Dinsmore. Three were seen overhead, in comparison with a Red-tailed Hawk, on the extremely early date of 8 March near Durham, N.C., by Todd Hass and Jeff Pippen.

MERLIN: The latest report from the coast was 16 May, at Portsmouth Island (Jeremy Nance, Steve Dinsmore). Inland sightings, all in North Carolina, were of single birds on 17 April at Greenville (Russ Tyndall), on 26 April at Rocky Mount (Ricky Davis), on 30 April at Eno River SP (Scott Hartley), and on 9 May near Glendale Springs (Carolina Bird Club field trip).

PEREGRINE FALCON: A pair again was present at Chimney Rock Park, N.C., this spring, according to Simon Thompson, but nesting evidence could not be found. An immature was slightly late at Portsmouth Island on 17 May (Jeremy Nance).

PURPLE GALLINULE: Single birds were noteworthy on a small pond north of Southport, N.C., as seen by Greg Massey and Jeremy Nance on 25 April, and on northern Core Banks from 23 to 30 May, as noted by Steve Dinsmore.

SANDHILL CRANE: The only spring report was one seen at the Orangeburg sod farms, S.C., by Roger Clark, Kevin Calhoon, Lex Glover, and others from 6 to 21 March.

BLACK-BELLIED PLOVER: Eric Dean saw two on 9 May and one on 25 May at Goldsboro, and Sam Cooper observed two calling overhead on 20 May near Zebulon, N.C.

LESSER GOLDEN-PLOVER: Always a rarity in spring, one bird was seen by Robin Carter and Caroline Eastman at the Orangeburg sod farms on 5 April.

BLACK-NECKED STILT: Steve Dinsmore noted one on 3 May and two on 5 May at Portsmouth Island, where the species is considered a rare migrant.

AMERICAN AVOCET: This species is rare in North Carolina away from the Pea-Bodie islands area; thus, of interest was one seen on 22 and 23 May at Portsmouth Island (Steve Dinsmore).

UPLAND SANDPIPER: The highest spring count was at the Orangeburg sod farms, with 12 seen on 11 April by Robin Carter, who observed a very early individual there on 11 March. Rare in spring on the Outer Banks were singles seen on 10 April at Cape Hatteras point (Marcia Lyons) and on 15 May at Salvo (Rick Knight).

WHIMBREL: Steve Dinsmore observed one of the *phaeopus* (European) race on 10 May at Portsmouth Island. This race, identified by a white rump and lower back, has been seen on several previous occasions along the North Carolina coast.

BAR-TAILED GODWIT: One individual in basic plumage, of the nominate (European) race *lapponica*, was seen and photographed by Steve Dinsmore at Portsmouth Island on 8 and 9 May. This is the first spring record for North Carolina.

RED KNOT: An excellent count of 2576 birds was made by Steve Dinsmore and Jeremy Nance on 17 May on the northern Core Banks.

WHITE-RUMPED SANDPIPER: The first bird of the season at Portsmouth Island was noted on 28 April by Steve Dinsmore, and Marcia Lyons observed a late migrant on 18 June at Cape Hatteras point.

PURPLE SANDPIPER: Six were still present at Huntington Beach SP on 1 May, as noted by Nathan Dias.

CURLEW SANDPIPER: Steve Dinsmore, who surveyed shorebirds on Core Banks and Portsmouth Island during the season, noted this species from 8 to 24 May, with three on 11 May. He believes that a minimum of six different birds was present over this span.

STILT SANDPIPER: An excellent early spring count of 35 birds was made by Harry Armistead on 20 March at the Savannah spoil area in Jasper County, S.C. The best count at Eagle Island, N.C., was eight on 10 May (Greg Massey); and three were rather late at the Santee Coastal Reserve, S.C., on 26 May (Bill Pulliam).

LONG-BILLED DOWITCHER: One in breeding plumage was late on 19 May at the Savannah spoil area, as seen by Bill Pulliam.

RED-NECKED PHALAROPE: Steve Dinsmore observed a female on 30 May, and a male and two females on 31 May, at Portsmouth Island. A very good onshore count was six phalaropes at Eagle Island on 31 May (Sam Cooper, Kevin Markham).

SOUTH POLAR SKUA: A pelagic trip off Oregon Inlet, led by Ned Brinkley, recorded an excellent total of at least five skuas, all of this species, on 22 May.

PARASITIC JAEGER: In addition to those seen offshore (see Table), many were seen from the North Carolina coast, as usual. John Fussell's first sighting at Atlantic Beach was on 20 April, with a peak of nine there on 8

May. From northern Core Banks, Steve Dinsmore noted birds beginning on 7 May with a peak of five on 8 May.

LONG-TAILED JAEGER: This species was observed on all four pelagic trips to the Gulf Stream off North Carolina from 16 to 24 May (see Table). Another bird, an adult, was seen by Steve Dinsmore at New Drum Inlet on 28 May.

LAUGHING GULL: The only inland sighting of the spring season was an adult seen by Paul Saraceni at Jordan Lake, N.C., on 19 April.

LITTLE GULL: Along the Outer Banks, two were seen north of Avon on 3 March (Steve Dinsmore), two were noted near Oregon Inlet on 5 March (Dinsmore), and two were also seen near that inlet on 15 March (Sam Cooper). Another bird was seen several miles off Beaufort Inlet, N.C., on 14 March by Harry LeGrand, John Fussell, and others. All but one of these gulls were adults.

COMMON BLACK-HEADED GULL: Very rare along the southern coast of South Carolina was a bird coming into breeding plumage at the Savannah spoil area, as noted by Sam Brayshaw on 15 March and by other birders through 21 March.

BONAPARTE'S GULL: John Cely and Lex Glover observed a late individual on 28 May at South Island, S.C.

ICELAND GULL: Sam Cooper saw an adult on shoals inside Oregon Inlet on 15 March, for the only spring report.

GLAUCOUS GULL: Single immatures were found on 3 March north of Avon, N.C., by Steve Dinsmore, and on 14 March off Beaufort Inlet, N.C., by Harry LeGrand, John Fussell, and John Wright.

GULL-BILLED TERN: Sam Cooper observed five birds feeding behind a tractor in a field near Aurora, N.C., on 19 May; and he saw two birds there on 27 May.

ROSEATE TERN: This species is seldom seen offshore, but birds were encountered on two trips off Oregon Inlet this season (see Table). Along the Outer Banks, three were at the Ocracoke Flats on 9 May (Diane Andre), three were on Portsmouth Island on 20 May (Steve Dinsmore, Jeff Walters), three were at New Drum Inlet on 28 May (Dinsmore), one was at northern Core Banks on 29 May (Dinsmore), and one to two were at Cape Hatteras point from 23 May to 1 June (Pat Moore et al.).

ARCTIC TERN: Remarkable numbers were seen off North Carolina this spring, including two trip totals of 27 birds each (see Table). Onshore in that state, an adult was carefully studied on the beach just west of Cape Hatteras point on 26 May (Diane and Keith Andre). Seldom seen in South Carolina waters, probably because most birds migrate beyond the distance normally reached by single-day boat trips, was an Arctic at least 40 miles off Charleston on 16 May, as noted by Steve Patterson and Irvin Pitts.

LEAST TERN: Greg Massey found about 25 pairs nesting at a newly created sand spit at Eagle Island on 28 May.

BLACK-BILLED CUCKOO: Individuals were noted in South Carolina near Mayesville on 29 April (Lex Glover, Evelyn Dabbs), at I'On Swamp near Charleston on 30 April (Nathan Dias), and near Columbia on 9 and 10 May (Tom Hankins et al.). Birds in North Carolina were seen at Durham on 26 April (Doug Shadwick et al.), at Tryon on 27 April (Simon Thompson), and at Frisco on 22 May (Pat and Neal Moore).

BARN OWL: Ruth Young saw one being mobbed by crows near Alexander, Buncombe County, N.C., on 23 May. James Lasley observed at least one owl roosting or nesting in an old church in Lancaster, S.C., in May.

NORTHERN SAW-WHET OWL: Rick Knight heard one calling on Roan Mountain, N.C., on 17 April. Though the species has been previously reported from Grandfather Mountain, N.C., two heard calling along the Blue Ridge Parkway (on the eastern flank of that mountain) on 11 May by Rich Boyd and others might represent a new locale for the species.

RUFOUS HUMMINGBIRD: An adult male was seen feeding at fuchsias at the Hyatt Creek community in Haywood County, N.C., for one or two weeks in August 1991. Ken Morrison photographed the bird on 27 August 1991.

YELLOW-BELLIED SAPSUCKER: Jeremy Nance and Jeff Pippen saw a sapsucker excavating a nesting cavity in a dead tree at Trout Lake near Blowing Rock, N.C., on 10 May.

OLIVE-SIDED FLYCATCHER: Two were seen at Chapel Hill, N.C., on 3 May by Ken Lundstrum and Alan Reckhow, with one there on 10 May (Todd Hass, Helmut Mueller). One was seen and photographed at Hendersonville, N.C., on 10 May by Wayne Forsythe; and one was seen singing on 24 May near Wampee in Horry County, S.C., by Rick Murray.

EASTERN WOOD-PEWEE: At least two weeks early was one heard singing on 7 April at Chapel Hill by Paul Saraceni.

YELLOW-BELLIED FLYCATCHER: The only reports for the spring were one seen calling at Chapel Hill on 19 May by Todd Hass and one seen at Longs, S.C., on 25 May by Rick Murray.

LEAST FLYCATCHER: Very rare in spring near the coast was one seen and heard calling at Mount Pleasant, S.C., by Robin Carter and Roger Clark on 28 April. Rich Boyd and party noted four birds in the Boone, N.C., area on 11 May; one bird was building a nest on that date.

EASTERN PHOEBE: Surprisingly close to the coast was a nesting report of phoebes from Rick Murray. He and others observed birds nesting over a porch at Little River, S.C.; five young were seen in the nest. Anne Waters noted a pair nesting under a bridge just west of Edgefield, S.C., on 10 April, plus another pair nesting east of Trenton, S.C., on that date.

GREAT CRESTED FLYCATCHER: A week or two early were two seen at New Bern on 21 March by Rich Boyd and party.

EASTERN KINGBIRD: Steve Dinsmore carefully observed one at Bodie Island, N.C., on the very early date on 22 March.

GRAY KINGBIRD: Always a good find was one seen at Georgetown, S.C., on 23 April by Bill Pulliam.

SCISSOR-TAILED FLYCATCHER: Very rare in the winter months was a late individual seen on telephone wires along US 17 in western Brunswick County, N.C. Mary McDavit saw the bird on 3 December 1991.

RED-BREASTED NUTHATCH: This species has not been found to conclusively nest in South Carolina, but Nathan Dias saw two birds inspecting dead snags at the top of Sassafras Mountain on 11 May.

BROWN CREEPER: Harry LeGrand and Steve Hall saw an adult nest-building under the bark of a tree just northwest of Deep Gap, along the Macon-Clay county line, N.C., on 23 April. Derb Carter and LeGrand found another nest under shingles on the side of a house in Linville, N.C., on 10 May.

SEDGE WREN: One was rare or early on 21 March at Carolina Sandhills NWR, S.C. (Kevin Hennings).

VEERY: One banded by Bill Hilton Jr. on 23 May near York, S.C., was somewhat late.

GRAY-CHEEKED THRUSH: This noticeably declining migrant is now a rarity in many places, but Jack Peachey noted one at Huntington Beach SP on 26 April for a rare coastal spring report. Elizabeth Pullman banded a late individual in southern Durham County, N.C., on 28 May.

WATER PIPIT: Two were somewhat late at Doughton Park along the Blue Ridge Parkway, N.C., on 8 May (Ricky Davis).

YELLOW-THROATED VIREO: Seldom found at any season on the Outer Banks was a singing vireo at Frisco from 1 to 9 June, as noted by Pat Moore.

WARBLING VIREO: This species continues to breed at Santee NWR, S.C., where at least three were singing on 6 May (Lex Glover). Nearly as unusual was a male, apparently on territory, singing in a Greensboro, N.C., yard from 9 May into June; however, there was no evidence of a female (fide Herb Hendrickson). A presumed migrant was one seen and heard singing at Chapel Hill on 8 May by Todd Hass.

PHILADELPHIA VIREO: The only spring report surprisingly came from the coast, where exceptionally rare at this season: one at Wampee in Horry County, S.C., on 30 April (Rick Murray).

GOLDEN-WINGED WARBLER: Dennis Forsythe saw a rare coastal bird on 4 May at Folly Beach, S.C.

BREWSTER'S WARBLER: This hybrid was seen, singing a Blue-winged Warbler song, at Eno River SP on 28 April by Scott Hartley.

TENNESSEE WARBLER: This is another very rare species along the coast in spring; yet a singing bird was seen by Greg Massey at Wilmington on 10 May.

ORANGE-CROWNED WARBLER: This apparently increasing species was seen at four sites in the piedmont of North Carolina from 28 March to 1 May. Heathy Walker had two birds in her yard in Charlotte from 29 April to 1 May.

NASHVILLE WARBLER: This species often is unreported in the Carolinas in spring; thus, a major surprise was the remarkable flurry of sightings, including several from the coast. In North Carolina, one was seen on the very early date of 13 April at Goldsboro (Eric Dean), a singing bird was seen on 9 and 10 May at Linville (Ricky Davis, Mike Tove, et al.), one was seen at Charlotte on 10 May (Heathy Walker), and two were unusual at Wilmington on 10 May (Greg Massey). In South Carolina, a male was banded near York on 26 April (Bill Hilton Jr.), one was seen at Mount Pleasant on or about 5 May (Donna Forsythe), and one was seen at Columbia on 8 May (Nathan Dias).

MAGNOLIA WARBLER: Bill Hilton Jr. banded a late male near York on 1 June.

BLACK-THROATED BLUE WARBLER: An excellent single-observer count was 40 birds seen by Jeremy Nance in the Raleigh, N.C., area on 9 May.

YELLOW-THROATED WARBLER: About two weeks early was one seen on 8 March at Goldsboro by Ricky Davis.

CERULEAN WARBLER: Harry LeGrand and Steve Hall counted at least 12 males on territory along the Appalachian Trail in the Yellow Creek Mountains east of Fontana Village, N.C., on 24 April. In the coastal plain, Ricky Davis noted one on territory along Fishing Creek on the Edgecombe-Halifax county line, N.C., from 3 May to early June. Greg Massey had a very rare coastal migrant at Wilmington on 10 May.

BLACK-AND-WHITE WARBLER: Near the edge of the breeding range was a pair seen, with the female carrying food, in Aiken County, S.C., on 30 May (Anne and Vernon Waters).

AMERICAN REDSTART: Lex Glover observed several pairs along the Santee River in northern Berkeley County, S.C., on 29 May. He saw a female carrying nesting material and saw another female with a brood patch.

PROTHONOTARY WARBLER: At least one bird was noted singing along Reedy Fork Creek north of Greensboro throughout May, as reported by Herb Hendrickson.

WORM-EATING WARBLER: Rick Murray had as many as three singing birds on territory in the Wampee area of Horry County, S.C., from 18 April to 20 May. The species is rare as a breeder in coastal counties of that state.

SWAINSON'S WARBLER: An excellent total of ten singing birds was noted by Simon Thompson at Chimney Rock Park, N.C., on 17 May.

NORTHERN WATERTHRUSH: Quite early was one seen on 4 April at the Congaree NM in Richland County, S.C., by Robin Carter and Caroline Eastman.

LOUISIANA WATERTHRUSH: Greg Massey and Jeremy Nance heard three singing birds about 3 miles south of Bolton, N.C., on 25 April. John Fussell noted one singing on Black Creek, about 5 miles southeast of Maysville, N.C., on 11 May. In South Carolina, Anne Waters saw an adult carrying nesting material west of Edgefield on 10 April; the bird was still at that site on 17 May. Waters noted a singing bird on 10 April and 17 May south of Trenton along Paces Branch.

WILSON'S WARBLER: The male that spent the entire winter at Huntington Beach SP was last reported on 15 March (Lex Glover).

YELLOW-BREASTED CHAT: Presumably a locally wintering bird was observed by John Fussell in a yard in Morehead City, N.C., from 22 to 31 March.

WESTERN TANAGER: The male present at Don Watts' feeder in Goose Creek, S.C., during the winter was last seen on 28 March.

DICKCISSEL: The only spring report was, surprisingly, at a feeder near Couchton, Aiken County, S.C. Christine Huzella first saw the bird on 11 March, and other birders saw it through 8 April.

LARK SPARROW: An excellent inland find was one seen on 23 March at Greenville, N.C., by Howard Vainwright.

LE CONTE'S SPARROW: This secretive sparrow was observed near LaGrange, N.C., on 8 March by Ricky Davis.

LINCOLN'S SPARROW: Bill Hilton Jr. banded one near York on 2 May, Bill Pulliam saw one on 5 May at Georgetown, S.C., and Jeff Pippen and Will Cook saw another on 6 May near Chapel Hill.

SONG SPARROW: Seemingly south of the breeding range was one singing at the Lake Wateree dam, S.C., on 31 May (Lex Glover).

WHITE-CROWNED SPARROW: A good local count was five birds at New Bern, N.C., on 21 March, as seen by Rich Boyd and party. One seen by Gene Howe was late on 15 May at Goldsboro.

DARK-EYED JUNCO: Seldom seen near the coast after mid-April, single birds were late at Atlantic Beach, N.C., on 4 May (Neill Lee) and at Wilmington on 9 May (Greg Massey).

YELLOW-HEADED BLACKBIRD: One was seen in Winston-Salem, N.C., on 9 April by Heathy Walker and others. [This bird was reputedly present in that city for some time, but I received no correspondence from anyone in that city to provide other dates.—HEL]

BREWER'S BLACKBIRD: The small flock that wintered at Cherry Hospital near Goldsboro was last seen on 2 April by Eric Dean. A female was a good find by Rick Murray at Wampee, S.C., on 5 April.

NORTHERN (BULLOCK'S) ORIOLE: Evelyn Dabbs observed a male of this subspecies singing in her yard near Mayesville, S.C., on 10 and 11 May. [This might be the first reported instance of this subspecies singing in the Carolinas.—HEL]

PINE SISKIN: Very late in departing was a siskin seen on 4 June at a feeder in Chapel Hill (Will Cook, Jeff Pippen, et al.).

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BOOK REVIEW (continued from Page 64.)

lar European habitat, but much of the book has reference to similar zones in Asia and North America. The conservation issues covered toward the end of the book affect us all wherever we may live and bring painful topics such at the continued shooting of birds of prey to the forefront.

A coffee table tome this is not, but it is a splendid insight into the past, present and future of the bird life in the British highlands. More habitats will be covered in due course in further volumes.

At a price of $45, this is not a cheap book, and it is not a book for the ardent lister. Should anyone be traveling and birding in Britain, this book should supplement the standard field guides and give the observer an understandable link between the bird and the world in which we live.— Simon R. B. Thompson

BOOK REVIEW

BIRD LIFE OF MOUNTAIN AND MOORLAND.

Derek Ratcliffe. 1990. Cambridge University Press, Cambridge, England. Hardback. 256 pp. incl. index.

When first asked to review this book, I put it to one side on the basis of its title alone. In this day of international field guides and single species monographs, "Bird LIfe of Mountain and Moorland" did not fit into my current thoughts of new additions to the world of ornithology.

Upon closer examination I found out that I was quite mistaken and was soon reading it from cover to cover. The very well written and easy to read text is liberally sprinkled with tables, black and white photographs and delightful line illustrations by Chris Rose. These culminate in the portrayal of a European Dipper beside a Scottish stream and a perfect Red-necked Phalarope mirrored in a bog pool.

The habitats throughout Britain—England, Scotland and Wales, have all been altered on a great scale by man over the centuries. The much-treasured hills and moorlands of modern Britain were once heavily forested, but by the early 1800s this had been cleared for domestic livestock creating the open, treeless scenes that are so familiar today. Sheep farms have crept up the hillsides only to be forced back into the valleys by the inhospitable northern climate, and many of the blanket bogs and "flows" have been drained for grouse moors and forestry. The end result is that the bird populations throughout the higher reaches of the British Isles have always been in a constant state of flux. This is continuing today with the modern blanket forestry techniques.

The birds of these zones from high valley to mountain top are covered in a manner indicating their status past and present. Particular attention is paid to raptors including the spectacular rebound in Peregrine numbers since their low in the 1960s. The increase continues to this day and Peregrines have now passed their previous high as numbers continue to rise.

All birds are part of the environment around us, and the more we know about the soils, plant life and climate, the more we can know what birds to expect in any location and the easier populations are to monitor and manage. Like it or not, we have been managing certain habitats for hundreds of years for certain species. This now continues with raptor management throughout many areas of the world.

"Bird Life of Mountain and Moorland" makes the bird-habitat connection natural and logical. What the author may or may not have realized is that he has possibly created many an armchair ecologist with this book.

Delving back into my past, I remember cutting my teeth on Desmond Nethersole-Thompson's "The Greenshank". Ratcliffe continues in the same vein but in greater detail and evokes the image of the British highlands more strongly.

Of course the book appeals a great deal to those familiar with this particu-

(continued on Page 63.)

Carolina Bird Club
INC.

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Carolina Bird Club, Inc., is a non-profit educational and scientific association founded in March 1937 and open to anyone interested in the study and conservation of wildlife, particularly birds. Dues, contributions, and bequests to the club are deductible from state and federal income and estate taxes. Checks should be made payable to Carolina Bird Club, Inc., and sent to CBC Headquarters, P.O.Box 27647, Raleigh, N.C. 27611.

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The Chat

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THE CHAT

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REPORT OF THE NORTH CAROLINA BIRD RECORDS COMMITTEE 1992

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This report enumerates the decisions of the Carolina Bird Club's North Carolina Bird Records Committee during 1992.

ACCEPTED AS VALID. The reported identification is judged to be accurate and the bird is judged to be of wild origin.

WESTERN GREBE (*Aechmophorus occidentalis*). One was seen on 28 December 1969 along the shore near Carolina Beach by John Irvine (Chat 35:27-29). At the present time, this is the only record that has been accepted as valid by the Committee, despite a handful of sight records. The species is moved from the Unresolved category to the Provisional List.

HERALD PETREL (*Pterodroma arminjoniana*). One individual in light-phase plumage was seen by a group of birders on 6 June 1992 in the Gulf Stream off Oregon Inlet. The Committee reviewed written descriptions from Ed Kwater, Jerry McWilliams, and John Drummond and accepted the report, the first for the state (and probably in North American waters) of the light phase. The species is already on the Official List, with a specimen and photographs available.

HERALD PETREL. An individual in intermediate plumage was seen and photographed (Am. Birds 45:511) off Cape Hatteras on 22 May 1991 by Robert Ake, Killian Mullarney, and several other birders. The previous reports for North Carolina had been of birds in the dark phase; this might be the first report of the intermediate phase for North American waters.

NORTHERN GANNET (*Sula bassanus*). An individual seen plunge-diving into Falls Lake in Durham County on 30 November 1991 was one of the few inland records for the state and is the first such inland record reviewed and accepted by the Committee. Leslie Todd made the initial sighting and provided the description to the Committee.

ROSEATE SPOONBILL (*Ajaia ajaja*). An immature was observed by Richard Davis at Calabash Creek in Brunswick County on 13 July 1992, and presumably the same bird was later observed by many observers at Eagle Island near Wilmington. Though there are at least eight to ten previous state records, and the species has long been on the Official List, this is the first state record in perhaps ten years. Photos provided by Robert Merrick have been deposited at the N.C. Museum of Natural Sciences, which previously had no specimen or photographs available as tangible evidence.

BAR-TAILED GODWIT (*Limosa lapponica*). One bird in basic plumage, of the nominate *lapponica* race, was seen and photographed by Stephen Dinsmore at Portsmouth Island on 8 and 9 May 1992. This is the first spring record for the state and about the fifth overall for North Carolina. The species is already on the Official List, with photos to document the species.

RUFF (*Philomachus pugnax*). One was observed by Richard Davis, Bob Lewis, and others at an impoundment at Mattamuskeet National Wildlife Refuge on 29 December 1991 and for a few days thereafter. This is a remarkable record for the season and is believed to be the first winter record for North Carolina. There are numerous records for the state during the warmer months.

PARASITIC JAEGER (*Stercorarius parasiticus*). An individual was seen on several dates in November 1991 at Jordan Lake in Chatham County, for one of the very few inland records for the state. Stephen Dinsmore made the initial sighting, but the Committee reviewed and accepted the description by Paul Saraceni.

SAY'S PHOEBE (*Sayornis saya*). One was seen and photographed near the Pony Pens on Ocracoke Island on 11 October 1991 by Hugh McFadden. The photograph was judged to validate the sighting, though only sparse details accompanied the photograph, which has been deposited at the N.C. Museum of Natural Sciences. This is the third accepted record for the state, moving the species from the Provisional List to the Official List. The two other records are from the central portions of the state (Wake and Harnett counties).

CAVE SWALLOW (*Hirundo fulva*). Two birds were seen among a flock of several other species of swallows on the unusual date of 16 December 1991. John Fussell, Larry Crawford, and Bob Holmes saw the birds at a quarry at New Bern. No photographs were taken, and the birds could not be found on later dates. This report, the second for the state but the first accepted as valid, places the species on the Provisional List.

BLACK-THROATED GRAY WARBLER (*Dendroica nigrescens*). One was observed by Clyde Sorenson at Greensboro on 24 February 1992. However, he was unable to photograph the bird when he later returned with a camera. This is the third report, and second accepted sighting, for North Carolina. The species remains on the Provisional List.

CHESTNUT-COLLARED LONGSPUR (*Calcarius ornatus*). One individual, believed to be a female, was observed in late February and early March 1992 at the Charlotte Motor Speedway, near Harrisburg. Taylor Piephoff made the initial observation; David Wright, Kevin Hennings, and other local birders observed the longspur, as did six of the seven members of the Committee. Colors photos taken by Mary Welty and David Wright, as well as several written details, were reviewed by the Committee, which accepted the record. This is the first record of the species for North Carolina, and the species is placed on the Official List. The photos have been deposited at the N.C. Museum of Natural Sciences; however, full details should be published to complete the documentation of the record.

SHINY COWBIRD (*Molothrus bonariensis*). Four males were observed by Philip Crutchfield at a shopping center in Fayetteville on 30 October 1991. The birds were compared with nearby Brown-headed Cowbirds (M. ater). This is the third record of Shiny Cowbird for the state; the species is already on the Official List, based on a specimen from New Bern in 1990 (Chat 56:53).

UNACCEPTED SIGHTING. The bird is judged to be a species other than that reported, or the bird is insufficiently documented for identification to the species reported.

WESTERN GREBE (*Aechmophorus occidentalis*). One reported from the southern coast in early 1991 was not accepted. Though many or most of the details seem to point to the species, there were some bothersome circumstances surrounding this and other reports of the species made by the same observer in the general area on previous occasions.

WESTERN GREBE. One reported at Myrtle Grove Sound in 1971 (Chat 35:22) was not accepted. Five of the seven Committee members felt that the reported details were incomplete and that the record was thus inadequately documented.

WESTERN GREBE. Another report of Western Grebe, of two birds at Wrightsville Beach in 1976 (Chat 41:38), is also not accepted. Other species of grebes or loons were not satisfactorily eliminated, based on the published description.

VARIED THRUSH (*Ixoreus naevius*). One was reported from the southeastern coast in early 1992; the bird in question was seen in a flock of American Robins (*Turdus migratorius*). The Committee did not accept the report, with concerns about the observer's experience and the unlikelihood of this species appearing near the southeastern coast, away from a feeder. Nearly all records of Varied Thrush from the Eastern states are from feeders in the mountains or piedmont, typically near conifers. It was also not able to be re-located by other observers, despite some effort. There are still no accepted records of this species for North Carolina.

KIRTLAND'S WARBLER (*Dendroica kirtlandii*). One reported from Ocracoke Island in the fall of 1991 (Chat 56:21-29) was not accepted. The Committee did not accept the original report on a Rare Bird Sighting form (Chat 56:55), nor did the published description change the decision of the Committee. The Committee was simply not convinced that an individual of this exceedingly rare, and Federally listed as Endangered, species was present, despite published details that were not obviously incorrect for Kirtland's.

KIRTLAND'S WARBLER. An individual reported from Rocky Mount on 2 September 1936 (Chat 56:21-29) was also not accepted. Several Committee members felt that the published description was inadequate to thoroughly review the record, whereas the majority considered the bird to be incorrectly identified.

UNRESOLVED. Further consideration by the Committee is needed.

BULWER'S PETREL (*Bulweria bulweria*). One was observed in the Gulf Stream off the Outer Banks during summer 1992. This is apparently the first reasonably well-described report for the species in North American waters. However, the bird was not photographed. Though none of the seven Committee members has any field experience with Bulwer's Petrel, the majority of the Committee members accepted the record. However, one Committee member felt the report was inadequately documented (a few field marks were not seen) and another member abstained from voting. By rules of the Committee (more than 50% Accepted votes yet at least 25% Non-accepted votes), the report must be submitted for outside review; details will be submitted to persons familiar with the species.

CAVE SWALLOW. One was reported from a coastal site in early winter 1987. However, the report was not submitted for Committee consideration until after the 1991 sighting was made. Though there were no Unaccepted Sighting votes, the report did not meet the required 75% level of acceptance (because of two Inadequately Documented votes) and thus details have been submitted for outside review.

Committee members:	Harry E. LeGrand, Jr., Chairman
	Richard J. Davis
	John O. Fussell III
	J. Merrill Lynch
	Simon R.B. Thompson
	Michael H. Tove
	John S. Wright

REPORT OF THE SOUTH CAROLINA BIRD RECORDS COMMITTEE

1992

The South Carolina Bird Records Committee held a meeting in Charleston on 11 April 1992 to establish its basic operating rules, which in great part follow those used by our North Carolina counterparts. Due to the large size of the committee (9), it was decided that a record would be accepted as valid so long as it received a minimum of six (6) accept votes, but not more than one (1) reject vote (misidentified or insufficient details). Excess abstentions, should they reduce the accept votes to less than six (6), would also reject a record. Rejected records will be retained in the file, and if a new species to South Carolina, will cause the species to be placed on the "hypothetical" list.

During the year a total of twenty-three (23) records have been circulated to the members. Of these, action is complete, or sufficiently so to establish an outcome, on fifteen (15). Of these twelve (12) have been accepted, and three (3) have been rejected. One of the latter, Black-chinned Hummingbird, will probably be added to the Hypothetical list. The attached table details these actions. The record number is coded by month, year, and order of receipt for that month by the secretary. As will be noted, several relatively early records still require action. This is mainly due to late submittal of these records to the committee, rather than to inaction by committee members who are, however, not always as prompt as I, the secretary, might desire.

While I feel that this is a very promising beginning, wider participation by CBC and ABA members, as well as birders in general is most important if we are to obtain a complete picture of birdlife in South Carolina. In general, any unusual, out of season, or out of place bird should be reported, and a record made of it. Many birds are on the state list on the basis of a single specimen or very few sightings, and more needs to be known of their seasonal and geographic distribution, as a tool for their eventual preservation and perpetuation. So, if in doubt, submit it, and I'll be glad to inform you, individually, of the committee action.

Peter L. Worthington, Secretary
South Carolina Bird Records Committee

Actions of the SCBRC — 1992

Record #	Species	Location/Author	Action
10-90-1	Western Tanager	John's Island/Laurie	Reject
8-91-1	Band-tailed Pigeon	Georgetown/Pulliam/P	——
9-91-1	Warbling Vireo	Simpsonville/Worthington	Acct-D
10-91-1	Olive-sided Flycatcher	Broad River WMA/Worthington	Accept
10-91-2	Bell's Vireo	Broad River WMA/Clark	Accept
10-91-3	Clay-colored Sparrow	Broad river WMA/Kalbach	Accept
10-91-4	Ruff (Reeve)	Savannah Spoils Site/Clark	Accept
10-91-5	Curlew Sandpiper	Savannah Spoils Site/Clark	Acct-Pr
11-91-1	Hudsonian Godwit	Huntington Beach SP/Carter	Accept
12-91-1	Black-legged Kittiwake	Murrel's Inlet/Glover	Reject
1-92-1	Harlequin Duck	Murrel's Inlet/Carter	Accept
1-92-2	Western Tanager	Goose Creek/Carter/P	Acct-D
1-92-3	Western Tanager	John's Island/Laurie	Accept
2-92-1	"Bullock's" Oriole	Hilton Head/Dugas/P	Accept
2-92-2	Snowy Plover	North Island/Pulliam/P	——
3-92-1	Common Black-headed Gull	Savannah Spoils Site/Brayshaw, Glover	Accept
5-92-1	Black-headed Grosbeak	Savannah Spoils Site/Brayshaw	——
9-92-1	Black-chinned Hummingbird	Simpsonville/Worthington	Rejt-H
9-92-2	Sabine's Gull	Charleston Harbor/McNeill, Todd	——
10-92-1	Western Tanager	Simpsonville/Worthington	——
11-92-1	Black Guillemot	Murrel's Inlet/Buerger/P	——
12-92-1	Spotted Sandpiper	Lake Hartwell/Worthington	——
12-92-2	Pacific Loon	Murrel's Inlet/Eastman	——

Codes:
P - Photo(s)
D - Action to add to definitive list
H - Action to add to hypothetical list
Pr - Action to add to provisional list

CBC Rare Bird Alert
(704) 332-BIRD

General Field Notes

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NOTICE

Publication of any unusual sightings of birds in the Field Notes or Briefs for the Files does not imply that these reports have been accepted into the official Checklist of Birds records for either North or South Carolina. Decisions regarding the official Checklists are made by the respective State Records Committees and will be reported upon periodically in THE CHAT.

Bar-tailed Godwit at Portsmouth Island, Carteret Co., N.C.

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At 0855 on 8 May 1992, while surveying thousands of shorebirds on the flats at Portsmouth I., Jose Colon and I observed a Bar-tailed Godwit (*Limosa lapponica*) in basic plumage. Recent stormy weather had flooded the flats with up to a foot of water, concentrating many of the shorebirds along the west side of the flats. The godwit spent about half of its time feeding with loose flocks of Dunlin (*Calidris alpina*) and the remainder of its time feeding alone.

When I initially spotted the bird, it was clear I was not looking at a Marbled Godwit (*Limosa fedoa*), several of which were present nearby. Compared to a Marbled Godwit, the bird in question appeared smaller, shorter legged, shorter-billed, and had a paler, less buffy appearance. Knowing that any godwit other than Marbled would be unusual in spring, I decided to flush the bird. When flushed, the white rump and upper tail, barred distal portion of the tail, and white underwings identified the bird as a Bar-tailed Godwit (Hayman et al. 1986). Over the next 1 1/2 hours I studied and photographed the bird as it frequented the northwest end of the flats.

The following detailed description of the bird was written with the bird under observation. Although not compared directly, I estimated the bird to be about 20% smaller than a Marbled Godwit. When compared directly with a

Greater Yellowlegs (*Tringa melanoleuca*), the godwit was roughly 50% larger by body size. The bill was roughly 2 1/2 times the length of the head and distinctly upturned. The distal two thirds of the bill were dark, becoming pinkish near the base. The long legs were black. Proportionately, the legs were not as long as those of a Marbled Godwit. In flight, the legs extended about an inch beyond the tip of the tail. The head, neck, upper breast, mantle, and wings were dull gray-brown. The scapulars and especially the wing coverts were fringed with pale buff/white, giving the bird a scaly appearance. There was a dark area between the eye and the base of the bill, and a prominent white supercilium. The upperwing pattern, studied while the bird was in flight, was as follows: inner wing slightly darker brown than mantle, primary coverts appearing very dark brown or blackish, primaries (especially outermost ones) showing white at the base of each primary shaft and becoming darker towards the tips. Later, after looking at photos of the bird, it was clear that the white color was most evident in the outer primaries, gradually becoming less evident on the inner primaries. The underwing was entirely white. The axillars were also white, narrowly barred with dark brown. Although the upper breast was mostly a solid gray-brown, the lower breast and flanks were paler with obvious dark brown streaking. The belly and vent were white and unmarked. The tail pattern was similar to that of a dowitcher (*Limnodromus* spp.), with the white color on the lower back and rump forming a distinct inverted "V". The tail was white, with narrow, dark brown bars on the distal half. Barring was most obvious on the upper tail, though there appeared to be some barring on the under tail. The tip of the tail was white. The bird did not vocalize during any of our observations. Based on the white underwings, brown-barred axillars, and white lower band and rump, I identified the bird as belonging to the nominate race *lapponica* (Hayman et al 1986).

I observed the Bar-tailed Godwit again on 9 May from 0953–1050 at the northwest corner of Portsmouth Flats, but could not relocate the bird on later dates. This is the fifth record of a Bar-tailed Godwit from North Carolina, and the first spring record. Other records are of single birds at Pea Island Nation Wildlife Refuge, Dare County on 31 August–1 September (Browne 1976), 14 October 1974, and 21 September 1975 (Carlson 1976), and from Portsmouth I. on 22 September–10 October 1982 (Fussell 1983). Bar-tailed Godwits are very rare but regular vagrants along the Atlantic Coast, with most records occurring in fall (August-October). The few spring records are from May. Thus, this bird fits the pattern of the few spring occurrences along the Atlantic Coast.

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Onset of Evening Calling by Chuck-will's-Widow

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Chuck-will's-widows (*Caprimulgus carolinensis*) are crepuscular and nocturnal insectivores common in the coastal plain of the Carolinas. Calling and foraging behavior of caprimulgids after sunset has been correlated with nocturnal brightness (moon illumination level) in studies by Brauner (1952), Cooper (1981), and Mills (1986). Von Siebold Dingle (1956) studied the calls of both Whip-poor-wills (*C. vociferus*) and Chuck-will's-widows in South Carolina. He found that Chuck-will's-widows often call before dark. Chamberlain (1954) timed the rate of calling by both species in North Carolina.

The initiation of calling at dusk (before significant lunar illumination occurs) has not been examined in Chuck-will's-widows. In this study I investigated the time of first calling in relation to calendar date, sunset, temperature, cloud cover, and wind speed.

MATERIALS AND METHODS

On 76 nights between 24 April 1991 and 23 July 1991, I recorded the time of first calling by Chuck-will's-widow in the Sneads Ferry area of Onslow County, North Carolina. All recordings were made from the deck of my house located in a rural setting of early-successional abandoned farm land and recently logged mixed pine/hardwood forest. The date, time of sunset, percent of cloud cover, ambient air temperature (2 m above ground), and wind speed (2 m above ground) were recorded.

Unfortunately, I did not have access to a light meter to assess light levels at the time of first calling. At dusk, light levels varied tremendously within habitats. On many occasions ambient light levels were high in open areas but significantly lower 50 m away under a pine/oak canopy. The microhabitat of the calling birds was not known. Therefore, light readings would have been of little comparative value unless they were made in the microhabitats occupied by the calling birds.

RESULTS

The onset of calling by Chuck-will's-widows ranged from 17 minutes before sunset to 19 minutes after sunset and averaged 3.6 minutes after sunset. First calling occurred between 1953 and 2000 h in late April 1991, approximately 5 minutes after sunset. As the days became longer and sunset occurred later, the onset of calling was similarly later (Figure 1). By late June 1991 sunset occurred at about 2027 h, and average first calling time was about 2030 h. Later in the season (mid-July 1991), calling time was initiated somewhat later than sunset (2020 sunset; 2032 calling).

On 36 nights when the cloud cover was less than 50%, first calling averaged 5.1 minutes after sunset (range -7 to +19 minutes). On 32 nights when the

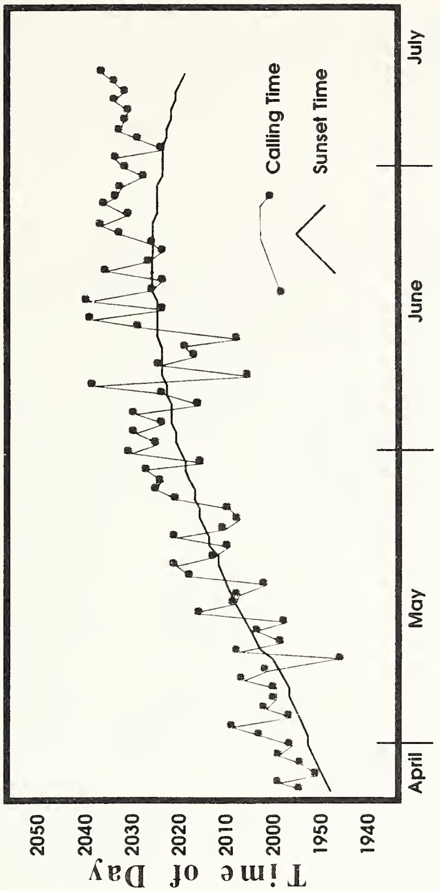

Figure 1. Onset of calling by Chuck-will's-widows with respect to time of day and time of sunset.

cloud cover was greater than 50%, first calling averaged 4.4 minutes after sunset (range -17 to +15 minutes). Significant correlations were documented between time of first calling and calendar date, time of sunset, ambient temperature, and wind speed (see Table 1). Calling was initiated later in the evenings

Table 1. Correlation coefficients (r) and probability values between calling time of Chuck-will's-widows and environmental factors.

Variable	r	P
calendar date	0.8710	0.000*
time of sunset	0.8365	0.000*
cloud cover	-0.0990	0.392
temperature	0.5792	0.000*
wind speed	0.2810	0.013*

* significant correlations

when temperatures were higher. For example, on cooler evenings (19°–23° C) most calling began about 2000 h and on warmer evenings (28°–32° C) most calling was initiated between 2020 and 2035 h. There was more scatter in the data correlating calling time with wind speed (indicated by the lower "r" value). However, on evenings with higher wind speeds, calling began later.

DISCUSSION

Cooper (1981) found no significant correlations of calling activity by Chuck-will's-widow with calendar date, sine curve date, temperature, relative humidity, wind velocity, visibility, or moon phase. Calling by Whip-poor-wills was significantly correlated with moon phase in Cooper's (1981) study. His 20-station survey route was initiated at sundown and terminated about 2 hours later. Thus, he did not examine the time of first calling, but rather correlated calling activity during a 2-hour time block beginning at sunset. Locomotory, vocal, and nest activity by Whip-poor-wills were significantly higher on moonlit nights (Mills 1986). Mills (1986) demonstrated that moonlight influenced activity only when the sun was more than 13° below the horizon. In my study, onset of first calling occurred before the sun was down 13°. Moon illumination near sunset was insignificant compared with solar illumination. Mills (1986) found no correlation of calling with wind. Brauner (1952) correlated vocal and locomotory activity of Poor-wills (*Phalaenoptilus nuttallii*) with light levels. Birds usually initiated calling at light levels below one foot-candle. Calling by Poor-wills generally occurred earlier on overcast days and later under clear sky conditions. On autumn mornings, Zammuto and James (1982) found significant correlations between onset of vocalizations and several environmental factors (time of sunrise, wind speed, cloud cover, and barometric pressure) in a study of 28 species of birds in Arkansas.

Calling intensity by Chuck-will's-widows was greater earlier in the season (April-May), corresponding with their arrival in the study area and competition for mates and territories. The number of calling birds subsided in mid-season, corresponding with nesting activities. Later onset of calling with respect to sunset in July may be associated with declining hormonal/territorial/nesting activities.

In summary, the initiation of calling activity by Chuck-will's-widows was documented on 76 nights between 24 April 1991 and 23 July 1991 in Sneads Ferry, North Carolina. First calling varied from 17 minutes before sunset to 19 minutes after sunset and averaged 3.6 minutes after sunset. Significant correlations were found with calendar date, time of sunset, temperature, and wind speed.

Acknowledgments: I thank Eloise F. Potter for constructive suggestions improving this paper and Mark Shields for statistical advice.

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Black-throated Gray Warbler at Greensboro, N.C.

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The senior author was birding at Guilford Courthouse National Monument in Greensboro, NC, on 24 February 1992. While searching for birds at the edge of a thicket behind the rest room station on the tour loop, he saw an apparent female Black-throated Gray Warbler (*Dendroica nigrescens*). The bird was in a mixed flock of Yellow-rumped Warblers (*D. coronata*), Tufted Titmice (*Parus bicolor*), Carolina Chickadees (*P. carolinensis*), and kinglets (*Regulus* spp.). The weather at the time of the observation was a heavy overcast; intermittent light rain occurred during the day, but not during the observation.

Sorenson noted that the Black-throated Gray was slightly smaller than the Yellow-rumped Warblers accompanying it and that it had a posture and conformation reminiscent of a Black-throated Blue Warbler (*D. caerulescens*), being somewhat plump and compact compared with the Yellow-rumpeds. It was mainly a slate gray color on the back and rump and dingy white underneath (belly, sides, flanks, and crissum). The crown was medium slate gray bordered on the lower margins by darker gray shading to black. There was a bright white superciliary line that stopped at the nape and a dark gray line through the eye that continued through the cheek to the nape. The chin and throat were dingy white; the throat was marked with a few short, gray streaks. The nape and upper back were the same gray as the remainder of the upperparts. The diagnostic mark was a bright yellow loral spot between the eye and the bill. This individual lacked the black upper chest depicted in most field guides; however, Sorenson has observed some individuals of this species in the West that have also lacked this black patch. There were some diffuse, grayish stripes on the chest and sides. The bird had two white wing bars, and the underside of the tail showed white tail spots on individual feathers. The tail looked somewhat short for a *Dendroica* warbler. The legs and bill were both dark, as were the eyes. The gray crown, white supercilium, gray eye stripe, and white throat, coupled with the yellow loral spot, eliminated other species.

After observing the bird for about 15 minutes with 10x binoculars, Sorenson left to get a camera to photograph the bird. However, he was unable to find the warbler 30 minutes later, nor could he find it on the following day.

This is the third report of the Black-throated Gray Warbler for North Carolina. The N.C. Bird Records Committee, chaired by the junior author, has reviewed unpublished notes of the sighting provided by the senior author and has accepted the record as valid. The first report for the state was a bird observed on the Wilmington Christmas Bird Count on 30 December 1965 (Chat 30:18, 24); however, no details have ever been published for this sighting, nor has the N.C. Bird Records Committee seen a written description of this report. The second record, published with full details (Chat 51:77–78), was a bird seen at Wilmington from 5 to 22 January 1986. However, as there are no specimens or photographs available for the species in the state, and as this Greensboro report is just the second published with details, the species remains on the Provisional List for North Carolina.

Manx Shearwater Collected in South Carolina

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On 17 April 1991, we found a dead Manx Shearwater (*Puffinus puffinus*) at the southwest end of Cape Island, Charleston County, South Carolina. It was imbedded in wrack deposited above the spring high-tide line. The shearwater appeared to have been dead for ≤ 5 days. It was emaciated (pectoral muscles convex), and the rear of the abdomen was partly covered by an oily, tar-like substance. The bird was prepared as a formaldehyde-preserved mummy, with one detached, flattened wing (ChM # 1992.15.053). Sex was not determined,. No molt was apparent.

This is the first documented record for the species in South Carolina. Haney (1986, Chat 50:44–46) lists three previous sightings for the state, all in the Atlantic Ocean more than 50 km from the coast. Post and Gauthreaux (1989, Contr. Charleston Museum XVIII) placed Manx Shearwater on the South Carolina Hypothetical List.

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1992 unless otherwise indicated)

COMMON LOON: An immature seen by Ruth Young at Beaver Lake near Asheville, N.C., was present at least from 28 June through the remainder of the summer.

PIED-BILLED GREBE: Kevin Markham and Sandy Smith saw an adult with three chicks in an impounded area northwest of Aurora, N.C., on 9 June. Notable in summer elsewhere inland were single birds at Lake Townsend near Greensboro, N.C., on 23 July (Herb Hendrickson) and at Greenville, N.C., on 10 June (Howard Vainwright). Robin Carter noted adults and young in a wet Carolina bay between Neeces and Orangeburg, S.C., from 3 to 25 June; and he heard another adult calling from a bay south of Allendale, S.C., on 9 June.

BLACK-CAPPED PETREL: Good counts in the Gulf Stream off Oregon Inlet, N.C., were 134 on 25 July (Carolina Bird Club members) and 99 on 27 June (Harry LeGrand, Ricky Davis, et al.). Todd Hass counted 57 birds in a single flock in those waters on 28 June.

SOFT-PLUMAGED PETREL: One, probably of the Cape Verde form, was seen in the Gulf Stream off Oregon Inlet on 27 June by Harry LeGrand, Ricky Davis, and party. Details have been submitted to a national journal.

HERALD PETREL: A light-phase individual, the first of this plumage to be reported in North Carolina waters, was noted by Ed Kwater, Jerry McWilliams, and John Drummond off Oregon Inlet on 6 June.

GREATER SHEARWATER: At least one was seen at the water's edge at Cape Hatteras point, N.C., on 4 June. Neal Moore, Pat Moore, and Diane Andre saw that bird along with a Sooty Shearwater and a Pomarine Jaeger; such an inshore phenomenon is most unusual.

AUDUBON'S SHEARWATER: One was seen sitting on the water just off the beach at Avon, N.C., on 25 July by Bob Collier.

LEACH'S STORM-PETREL: On pelagic trips off Oregon Inlet, four were observed on 27 June by Harry LeGrand and party, and one was seen on 25 July by Ricky Davis and other Carolina Bird Club members.

BAND-RUMPED STORM-PETREL: Harry LeGrand, Mike O'Brien, and others tallied an excellent 26 birds off Oregon Inlet on 27 June. A pelagic trip in the same area on 25 July had an "official" count of two birds (Mike Tove, Ricky Davis); however, several experienced birders identified eight to ten Band-rumpeds on this trip.

NORTHERN GANNET: One was seen a few miles off Oregon Inlet on 27 June by Harry LeGrand and Ricky Davis. An immature sulid, probably but not conclusively a Masked Booby, was unusual in the Gulf Stream off Oregon Inlet on 26 June (Todd Hass). [Northern Gannets are somewhat rare, yet a few are still present, during the summer months offshore; however, at all seasons they are almost always in the cooler water inshore of the Gulf Stream. --HEL]

GREAT CORMORANT: At the jetties at Masonboro Inlet, N.C., Sam Cooper saw six birds on 6 June and four still present on 4 July.

ANHINGA: Frank Enders saw seven at White's Millpond southeast of Scotland Neck, N.C., during the summer. This is a newly-reported site for the species, and Anhingas might well be nesting there. A female was rare in the piedmont at a beaver pond at the Flat Creek Preserve in Lancaster County, S.C., on 8 June, as noted by Robin Carter.

MAGNIFICENT FRIGATEBIRD: A female or immature was seen on 23 June 1989 near New Drum Inlet, N.C., by Karen and Glenn Ferrand (fide Steve Dinsmore).

AMERICAN BITTERN: One was rare at Eagle Island near Wilmington, N.C., on 26 July, as seen by Roger McNeill and Russ Tyndall.

LEAST BITTERN: In inland North Carolina, Merrill Lynch and others saw two in a marsh at Occoneechee Neck, Northampton County, N.C., on 6 June; and Lynch heard one calling from a marsh on the south side of Lake Phelps, N.C., on 26 June. Inland records from South Carolina, both by Robin Carter, were of one seen and heard at Lake Warren in Hampton County on 10 June and another seen at a Webb Wildlife Center pond in that county on 12 June.

REDDISH EGRET: There was an unprecedented flurry of sightings along the North Carolina coast during the summer. At least one adult and two immatures were present at Sunset Beach during the summer (Ricky Davis et al.), with the first bird (an adult) noted there on 20 June (Rick Murray). At least one was seen at Figure Eight Island during the summer by Derb Carter. Herb Hendrickson saw a bird, apparently one-year-old in age, at Bogue Inlet on 28 July. Steve Dinsmore saw an adult at New Drum Inlet on 11 June, and he noted at least three immatures or sub-adults all summer at this inlet. The northernmost record for the season was a one-year-old bird seen by Dinsmore at Portsmouth Island from 19 to 29 July.

YELLOW-CROWNED NIGHT-HERON: The only inland report for the summer was two birds seen in flight over a swamp near Tony Hill Bay in eastern Bamberg County, S.C., on 25 June (Robin Carter).

ROSEATE SPOONBILL: Very rare in North Carolina was an immature seen at Calabash Creek at Sunset Beach, N.C., on 13 July by Ricky Davis. What was likely the same bird appeared at Eagle Island, N.C., later in the month, as it was noted from 19 July into August by Greg Massey, Sam Cooper, and others. Seldom seen inland, an immature was observed by Paul Koehler at a pond at the Silver Bluff Sanctuary near Jackson, S.C., from 4 to 10 July.

WOOD STORK: Eric Dean noted a rare inland stork in North Carolina south of Goldsboro on 27 July. Robin Carter observed storks, presumably post-breeding birds, at three sites in Bamberg County and at single sites in Hampton and Allendale counties in South Carolina during June.

FULVOUS WHISTLING-DUCK: Two birds were very rare on the North Carolina Outer Banks, where seen at Portsmouth Island on 25 November 1989 by Karen and Glenn Ferrand (fide Steve Dinsmore).

BRANT: John Brunjes observed two out-of-season birds during the summer (at least through approximately 4 July) at Beacon Island in Ocracoke Inlet, N.C.

AMERICAN BLACK DUCK: Several were present at Eagle Island during the summer, but Sam Cooper found no evidence of nesting. This site is south of the normal breeding range.

GADWALL: A male spent the summer at a small lake near Spindale, N.C., as noted by Simon Thompson.

AMERICAN WIGEON: Simon Thompson reported that a male of this species spent all summer at a small lake near Spindale, N.C.

RING-NECKED DUCK: A male was seen at Price Lake near Blowing Rock, N.C., on 13 June by Jeremy Nance and on 19 and 20 June by Mark Simpson. A crippled female, unable to fly, spent the summer at Greenville, N.C. (Howard Vainwright).

SURF SCOTER: A crippled female or immature male was seen in early July at Cedar Island, N.C., by John Brunjes.

HOODED MERGANSER: Mark Simpson observed a female on Price Lake near Blowing Rock on the surprising dates of 19 and 20 June. Though the species nests on occasions in the piedmont and coastal plain of the Carolinas, this individual was likely a non-breeding bird.

RED-BREASTED MERGANSER: Herb Hendrickson saw a female that was late in departing at Lake Townsend near Greensboro, N.C., on 13 June.

RUDDY DUCK: Rare in midsummer was one seen on 26 July at Eagle Island by Sam Cooper and Kevin Markham.

TURKEY VULTURE: This species is seldom seen on the Outer Banks, except rarely in fall. Thus, a complete surprise was a vulture seen at Buxton from 8 to 11 June by Marcia Lyons.

AMERICAN SWALLOW-TAILED KITE: Although a few breed along the Savannah River, S.C., a count of 11 seen near the SC 125 - SC 302 intersection in Aiken County on 22 July (Gary Gray) was a notable tally. A visitor was rare near Stacy, Carteret County, N.C., where seen on 13 July by Bobby Clontz.

MISSISSIPPI KITE: A record state count was 47 birds, including at least four immatures, seen about 15 miles south of Scotland Neck, N.C., on 6 June by Roger McNeill and party. Other excellent counts in that state were up to 30 seen on the east side of the Roanoke River west of Lewiston-Woodville from May to July (Frank Enders), 29 adults at the "usual" site near Norfleet in Halifax County on 6 June (Merrill Lynch party), and 20+ near Conoho Creek north of Williamston on 24 June (Fred Annand). In addition, two were seen at Occoneechee Neck in Northampton County on 6 June (Lynch party) and one was seen along Fishing Creek at US 301 on 3 July (Enders), both also in North Carolina. Though there are still no nesting records for the state, all of these records might represent locally breeding populations. Almost certainly migrants or vagrants were single birds seen between Otway and Harkers Island, N.C., on 6 June (John Fussell, Deb Squires) and along the Broad River in Sumter NF in Chester County, S.C., on 6 June (Dennis Forsythe).

NORTHERN HARRIER: Strongly suggestive of breeding were single adult males carrying food at both Piney Island and on the mainland near Long Bay in Carteret County, N.C., during June (John Fussell). Also perhaps breeding locally were a male and female seen foraging at Waterlily in Currituck County, N.C., by Merrill Lynch on 26 June. The species is thought to nest somewhat yearly at Ocracoke Island, N.C., where Steve Dinsmore saw a female on 15 July. Presumably a migrant or visitor was an adult male seen by Eric Dean at Cherry Hospital near Goldsboro, N.C., on 24 July.

SHARP-SHINNED HAWK: One was a good find near Leeds, Chester County, S.C., on 8 June (Robin Carter).

COOPER'S HAWK: There were about 14 sightings in the Carolinas during the summer; this might indicate an increase in breeding populations over previous years. Those records suggesting breeding, all in North Carolina, were individuals seen carrying food at Polkville in Cleveland County on 4 June (Simon Thompson), near Cory's Crossroads in Beaufort County, N.C., on 7 June (Russ Tyndall), and at Tryon on 28 June (Thompson).

BROAD-WINGED HAWK: Near the coast, one was seen on 10 June by John Fussell at Beaufort, N.C., and another (an adult) was seen at Sunset Beach on 18 July by Harry LeGrand and John Wright. Other coastal plain summer records were a pair seen near Bamberg, S.C., on 5 June (Robin Carter); one seen in Tarboro, N.C., from 30 June into July (Russ Tyndall); and an immature hit and killed by a car at the Savannah River Site in Barnwell County, S.C., on 2 July (Brent Danielson).

PEREGRINE FALCON: Although there were several pairs that nested at previous sites in the North Carolina mountains, only the pairs at Whiteside Mountain near Highlands and at White Rock Cliffs in Madison County produced young, according to Allen Boynton. Herb Hendrickson saw a falcon at Burnsville, N.C., on 8 June.

BLACK RAIL: John Fussell had a count of 19+ calling birds on the night of 19 June at Piney Island, Carteret County, N.C.

KING RAIL: One or two birds were heard calling at Mason Farm just southeast of Chapel Hill, N.C., on 7 June for a rare inland report (Haven Wiley).

VIRGINIA RAIL: An outstanding count of 23+ Virginias were heard calling by John Fussell on the night of 19 June at the extensive brackish marshes on Piney Island, N.C. Perhaps on the breeding grounds was an adult seen at Eagle Island on 10 June by Sam Cooper.

PURPLE GALLINULE: This species formerly nested at the White Oak River impoundment in Onslow County, N.C., but recent visits by birders to this site have been extremely infrequent. A pair of birds and a nest were seen there in the summer of 1989 by Dave Fisher (fide Steve Dinsmore). Robin Carter saw a bird south of Allendale, S.C., on 9 June; the species seems to be declining as a breeder in that state.

LESSER GOLDEN-PLOVER: Single birds in basic plumage were unusual on the Outer Banks this summer: at South Pond on Pea Island on 28 June (Ricky Davis, Harry LeGrand) and 26 July (Davis), and at New Drum Inlet on 22 July (Steve Dinsmore).

BLACK-NECKED STILT: At a site of presumed nesting by stilts, John Fussell observed four birds at Piney Island on 19 June.

AMERICAN AVOCET: Rare away from the immediate coast were three birds seen near Aurora, N.C., on 16 July by Sam Cooper and Kevin Markham.

GREATER YELLOWLEGS: Rare in early summer was one seen by Jack Peachey at Huntington Beach SP, S.C., on 16 June.

UPLAND SANDPIPER: Rare for the mountains was one observed by Jennifer Wren and Betty McIlwain near Brevard, N.C., on 11 April. At the Piedmont Triad Airport near Greensboro, two birds were seen on 19 July by Henry Link, and four were seen there on 22 July by Herb Hendrickson. Other inland sightings of southbound migrants were four birds on the early date of 4 July at Orangeburg, S.C. (Roger McNeill) and one on 28 July near Goldsboro (Eric Dean).

LONG-BILLED CURLEW: Steve Dinsmore saw one from 17 to 31 July at New Drum Inlet, N.C., for the only summer report.

WHITE-RUMPED SANDPIPER: Steve Dinsmore had an excellent total of 105 White-rumpeds at Portsmouth Island on the rather late date of 6 June.

CURLEW SANDPIPER: At Portsmouth Island, Steve Dinsmore saw a bird in basic plumage from 5 to 11 June, a color-banded bird in basic plumage on 22 July, and an excellent count of five birds on 28 July. Three birds, two in alternate (breeding) plumage, were noted at South Pond on Pea Island on 26 July by Ricky Davis, Mike Tove, and party.

STILT SANDPIPER: Seldom reported in June in the Carolinas, two birds were seen by Steve Dinsmore on Portsmouth Island on 5 June.

WILSON'S PHALAROPE: One to two birds were seen at Portsmouth Island from 18 to 21 July (Steve Dinsmore), and two were seen near Aurora on 30 July (Sam Cooper, Kevin Markham).

RED-NECKED PHALAROPE: Steve Dinsmore observed a female on 2 June at New Drum Inlet and a male on 5 June at nearby Portsmouth Island. The only offshore report for the summer was two birds seen on 25 July off Oregon Inlet by Ricky Davis and party.

POMARINE JAEGER: Formerly thought to be rare in midsummer in the Gulf Stream, four Pomarines were tallied there on 27 June (Harry LeGrand party) and three were seen there on 25 July (Ricky Davis party).

SOUTH POLAR SKUA: Always an exciting find, one was observed by Ricky Davis and other Carolina Bird Club members off Oregon Inlet on 25 July.

LAUGHING GULL: One bird in breeding plumage was observed at Lake Gaston, Warren County, N.C., on 11 June by Harry LeGrand.

RING-BILLED GULL: Simon Thompson noted an immature at Columbus, N.C., on the unusual date of 21 June.

LESSER BLACK-BACKED GULL: Very rare in summer were a bird in near-adult plumage at North Topsail Beach, N.C., on 13 July (Gilbert Grant) and another Lesser Black-backed in first-summer plumage at New Drum Inlet from 21 to 31 July (Steve Dinsmore).

SABINE'S GULL: Seldom previously reported in summer, a one-year-old individual of this species was well described by Steve Dinsmore at Portsmouth Island on 18 July.

CASPIAN TERN: Almost certainly rare migrants were two seen at Spindale, N.C. (Simon Thompson) and three seen at Lake Phelps, N.C. (Merrill Lynch), with each report on 26 June.

ROSEATE TERN: A previously-banded bird was found dead on 21 May at Nags Head, N.C., by Patrick Brasington. Ian Nisbet reported that he had banded this individual as a chick at Bird Island, Massachusetts, on 17 July 1988. Reports of live birds for the summer were of two adults on northern

Core Banks on 1 June, an adult at Portsmouth Island on 2 June, and an adult at the latter island on 30 July, all seen by Steve Dinsmore.

ARCTIC TERN: One seen near "The Point" in the Gulf Stream off Oregon Inlet by Todd Hass on 28 June was a very rare summer report.

FORSTER'S TERN: Howard Vainwright noted the species at Greenville, N.C., on 20 June and 24 July (fide Veronica Pantelidis).

SOOTY TERN: A nest was found again during the summer along the North Carolina coast, but as usual no young were raised. John Brunjes found a nest of the species in a Common Tern colony at New Drum Inlet in late June, but the nest was later found deserted. An adult was seen on 30 July at Portsmouth Island by Steve Dinsmore, and another bird (of unspecified age) was seen at Raccoon Key, S.C., on 9 July (David Chamberlain).

BLACK TERN: A good count of 316 birds was made by Steve Dinsmore at a roost of the species at Portsmouth Island on 18 July.

COMMON GROUND-DOVE: This species has declined precipitously along the Carolina coast, for unknown reasons. A rare sighting for North Carolina was one at Sunset Beach on 13 July, as noted by Ricky Davis. Notable away from the immediate coast in South Carolina were one heard calling in extreme southern Bamberg County on 31 May by Robin Carter, one seen and another heard calling near Brighton in Hampton County on 23 June by Carter, and two seen near Conway from late July to mid-August by Jack Peachey.

BLACK-BILLED CUCKOO: One heard calling near Sparta, N.C., on 20 June was perhaps on territory (Harry LeGrand); but most unusual was one well outside the usual breeding range that was calling on territory in Charlotte for much of July (Taylor Piephoff et al.). John Fussell had late coastal migrants in Carteret County, N.C., on 5 June near Long Bay and on 14 June at the North River community.

BARN OWL: A pair with two chicks was found in an old cotton gin at Lattimore, N.C., by Pat Wilkison, and Simon Thompson observed the birds on later dates during the summer. Also in that state, Frank Enders noted a nest with four young in a barn about 3 miles west of Pungo Lake during the summer, and he observed birds in a silo about 3 miles south of that lake during the summer, as well. Betty McIlwain observed a Barn Owl flying from a cavity in a maple in downtown Brevard on 15 July, which suggests nesting in that mountain town.

WHIP-POOR-WILL: Rick Murray noted six calling, in comparison with 13 Chuck-will's-widows, along 2 miles of roads at dusk at Wampee, Horry County, S.C., on 2 June. Robin Carter found the species in summer in nearly every Breeding Bird Atlas block that he worked in central and southern South Carolina, including as far south as the Webb Wildlife Center in southern Hampton County. One calling from an island of pocosin vegetation amid extensive marshes at Piney Island, Carteret County, N.C., on 19 June (John Fussell) was a surprise, though the species is presumed to nest elsewhere in this county.

RED-COCKADED WOODPECKER: John Fussell found a previously unreported colony on the mainland of Carteret County near Long Bay, N.C.; an active nest was noted in June.

ALDER FLYCATCHER: A new breeding season locale for the species was found by Harry LeGrand and Steve Hall at Long Hope Valley along the Watauga - Ashe county line, N.C. Four birds were singing on the Watauga County side on 23 and 24 July, and a calling bird was about 2 miles away in Ashe County on 24 July. Mark Simpson had a good one-day count of nine singing birds between Ivestor Gap and the southern slope of Black Balsam Knob, Haywood County, N.C., on 16 June. Several observers found the species again at bogs at Julian Price Park near Blowing Rock, N.C., with birds on territory along both Cold Prong and Boone Fork (Mark Simpson, Scott Hartley, et al.).

WILLOW FLYCATCHER: Simon Thompson noted an excellent count of five singing males on 9 June at the only known South Carolina breeding location near Landrum in northern Spartanburg County.

LEAST FLYCATCHER: Mark Simpson noted one along NC 226 at the Tennessee state line in Mitchell County, N.C., on 18 June, and Harry LeGrand heard three singing at this site on 9 July.

EASTERN PHOEBE: Robin Carter found the species at three of six bridges over the North Edisto River along the Lexington - Aiken county line, S.C., on 14 June. The southernmost of these bridges was at SC 302.

GREAT CRESTED FLYCATCHER: One was seen and heard at a high elevation at Carver's Gap on Roan Mountain, N.C., on 7 June (Rick Knight).

SCISSOR-TAILED FLYCATCHER: One was observed by Allen Bryan during June on wires at a large field near Gull Rock, Hyde County, N.C.

HORNED LARK: Robin Carter found this species in the South Carolina coastal plain near Sawyerdale on 31 May and 7 June, near Norway on 5 June, at Salley on 14 June, and near Sycamore on 17 June.

TREE SWALLOW: The first reported nesting in the coastal plain of the Carolinas was made at Eagle Island near Wilmington, where Sam Cooper and Kevin Markham saw a male and female entering a tree cavity, and a juvenile leaving the cavity, on 28 June. Probable nesting was reported earlier in the season at Occoneechee Neck in Northampton County, N.C. Merrill Lynch and party saw two adults entering a tree cavity in a pond on 6 June, but no juveniles were observed.

BANK SWALLOW: Herb Hendrickson and Peggy Ferebee saw several Banks, apparently in courtship flights, at the Avery County Airport, N.C., on 10 June. The species is suspected to nest at a nearby quarry. Presumably early migrants were seven birds seen on 4 July near Seven Springs, N.C., by Gene Howe and Betty Grady.

CLIFF SWALLOW: Robin Carter noted dozens nesting under the SC 97 bridge at Lake Wateree, S.C., on 8 June. Somewhat early migrants along the North Carolina coast were two at Sunset Beach on 11 July (Steve Dinsmore, Jeremy Nance) and one at Cherry Point Air Station in Craven County on 23 July (John Fussell).

FISH CROW: The species is not known to nest as far west as Tryon, N.C., where Simon Thompson saw two crows on 17 June.

BROWN-HEADED NUTHATCH: This species continues to breed in a few places in Buncombe County, N.C., where Gail Whitehurst saw a family group of five birds in her yard in Asheville during the summer.

CAROLINA WREN: At a high elevation for the species was a singing wren at 5250 feet on Paul's Gap Trail near Spruce Mountain in Great Smoky Mountains NP, N.C., on 30 June (Jarvis Hudson).

HOUSE WREN: John Fussell tallied 14 birds at Great Sandy Run Pocosin, Onslow County, N.C., from May to July, where breeding is presumed. He also had a singing bird just northwest of NC 12 near Atlantic, N.C., on 13 June. In the eastern piedmont, one singing bird was rare in a yard near Littleton, Warren County, N.C., on 11 June (Harry LeGrand).

HERMIT THRUSH: At a new location was a singing Hermit Thrush in spruce forests on Unaka Mountain, Mitchell County, N.C., where noted by Harry LeGrand on 8 July.

GRAY CATBIRD: Merrill Lynch had an excellent coastal plain breeding-season count of 40 catbirds on mainland Dare County, N.C., on 30 May.

CEDAR WAXWING: This appeared to be a "quiet" summer for the species away from the mountains, as opposed to recent summers. The only positive nesting away from the mountains was reported by Simon Thompson, who saw a pair building a nest at Tryon, N.C., on 18 July. A very rare coastal plain nesting was reported in 1990 by Janet Lembke, who noted a pair nesting in her yard, including young in the nest, along the Neuse River in southeastern Craven County, N.C. (fide John Fussell).

SOLITARY VIREO: Very rare in the Sandhills region in summer was a bird observed singing on territory in a longleaf pine/scrub oak forest west of Pinebluff, Moore County, N.C., on 3 June (Harry LeGrand).

CHESTNUT-SIDED WARBLER: A male was present on territory from 6 June onward at Chimney Rock Park, N.C., as noted by Simon Thompson. This site is somewhat lower in elevation than usual for the species in summer.

YELLOW-THROATED WARBLER: Although not a rare breeding bird in the low mountains, nesting reports from the region are few. Of interest was a bird carrying food to a nest in a sycamore at the Botanical Gardens of Asheville, as noted by Ruth Young on 28 June.

WORM-EATING WARBLER: Merrill Lynch, Ida Phillips, and Patricia Tolbert had a good tally of 11 singing birds on a Breeding Bird Survey route on mainland Dare County on 30 May. John Fussell had a singing bird on the mainland portion of Cedar Island NWR, N.C., on 13 June. The three singing males near Wampee, S.C., in spring were found into June by Rick Murray.

SWAINSON'S WARBLER: Very rare in the piedmont as a breeder, suggestive of local breeding were at least two singing at Mason Farm near Chapel Hill on 10 May and at least one there on 26 June (Haven Wiley) and a pair along Reedy River in southern Greenville County, S.C., during the summer (Peter Worthington).

OVENBIRD: Robin Carter found the species on 5 June near Tony Hill Bay in Bamberg County, on 7 June near Sawyerdale, and on 9 June southeast of Barnwell, all in the coastal plain of South Carolina.

LOUISIANA WATERTHRUSH: Along the edge of the breeding range were a singing bird along a creek bank near Aurora on 16 June (Sam Cooper); near Tony Hill Bay in Bamberg County on 5 June (Robin Carter); and at a bridge over the Salkehatchie River southeast of Barnwell on 9 June (Carter).

SCARLET TANAGER: Somewhat near the eastern edge of the breeding range in North Carolina were a male near Oak City on 23 May, a male southeast of Jamesville on 20 June, and two birds near Gates on 26 June, as reported by Merrill Lynch. Bill Hilton Jr. banded an immature female, perhaps having been raised locally, near York, S.C., on 12 July.

INDIGO BUNTING: This species has expanded its breeding range, apparently, into the higher elevations of the mountains in recent years, and Rick Knight noted at least one singing male at an elevation as high as 6100 feet on Roan Mountain on 8 and 21 July.

PAINTED BUNTING: Robin Carter found the species to be fairly common to common in the breeding season in the inner coastal plain of South Carolina in Orangeburg, Bamberg, and Hampton counties.

DICKCISSEL: This species appeared to be very rare in the Carolinas this summer, as the sole report was of a pair seen along the edge of a cornfield 2.3 miles west-northwest of Aurora on 30 June by Kevin Markham and Sandy Smith.

FIELD SPARROW: This is a scarce breeder near most of the North Carolina coast; thus, a count of at least nine singing birds at Atlantic Field, Carteret County, on 25 June (John Fussell) was a surprise.

HENSLOW'S SPARROW: Merrill Lynch found at least three singing males at a new site in extreme western Martin County, N.C., on 23 May and 6 June. However, this species abandons most breeding sites in that state's coastal plain after a few years, when pine saplings begin to form a "canopy".

SONG SPARROW: James Lasley noted that at least one pair nested at a park in Lancaster, S.C., this summer. He reported a nest with five young at that park on 3 May 1984; this town lies along the southeastern edge of the breeding range of the Song Sparrow.

WHITE-THROATED SPARROW: One bird spent the entire summer, being last seen on 9 September, at the yard of Herman and Gail Lankford in Raleigh, N.C.

YELLOW-HEADED BLACKBIRD: A most unusual record, particularly for the mountains, was an adult male seen in flight at Soco Gap along the Blue Ridge Parkway, N.C., on 19 June by Bert Fisher, Les Todd, and Roger McNeill.

HOUSE FINCH: This species is still a rare bird in summer along the southern coast of South Carolina. A pair was seen all summer at the feeders of Grant and Daphnie Staley at Charleston, and another pair was seen on 22 July at Dennis Forsythe's feeders on James Island.

RED CROSSBILL: Harry LeGrand noted at least two calling over Unaka Mountain, Mitchell County, N.C., on 8 July, and he heard at least ten on the previous day at Roan Mountain.

PINE SISKIN: The best summer count was a group of as many as 22 birds at Roan Mountain from 7 June to 14 July, as noted by Rick Knight.

AMERICAN GOLDFINCH: Somewhat southeast of the usual breeding range was a group of three to four birds, including at least one male in breeding plumage, at a residence between Otway and Harkers Island, N.C. Deb Squires and John Fussell observed the birds for the entire summer, but conclusive nesting evidence was not seen.

BOOK REVIEWS

ECOLOGY AND CONSERVATION OF NEOTROPICAL MIGRANT LANDBIRDS

John M. Hagan, III, and David W. Johnston, eds. 1992. Smithsonian Institution Press, Washington, D.C. 20560. Softcover, 609 pp with index of authors.

This volume is a compilation of the proceedings of a symposium hosted by the Manomet Bird Observatory in 1989 and sponsored by a wide range of national and international organizations concerned with the future of neotropical migrant landbirds. Sparked by the need for a hemispheric alliance to protect the biological diversity reduced during the five hundred years following Columbus' opening of the New World to European immigration, the symposium's supporters invited a plethora of scientists to present the results of their research into the reasons for the population declines of these birds.

The symposium sought to address two aspects affecting population change: the fragmentation of North American forests in which many species seek breeding habitats and the loss of non-breeding habitat on their wintering grounds in the neotropics. By replacing speculation with scientific findings, it was hoped that a new set of questions to be answered could be formed, as well as a consensus on the urgency of the problem. The organization of the book reflects that of the symposium: sectional headings include "Trends in Populations", "The Nonbreeding Season", "The Breeding Season", and "Hemispheric Perspectives".

The theme of forest loss and its affects are heard throughout the book. It is not only the loss of total acreage that concerns many conservationists, but the loss of good quality breeding habitat. Particularly in the areas east of the Mississippi, not only has forest acreage been lost to farming and urban growth, but deciduous virgin forests have been converted to pine monoculture. Additionally, fragmentation has facilitated the range expansion of other species such as cowbirds that decimate the population growth of those birds that can find only less-than-optimal nesting sites. In the Neotropics, particularly Central America, loss of wintering habitat affects the stability of populations by removal of food and roosting resources.

The different papers published in this book provide a wealth of information on the status of these migrants. While quite a few detail research findings on specific species, many present an excellent overview of problems pertaining to all these birds. The included figures and tables permit easy access to facts about a reader's bird(s) of interest. Sauer and Droege's "Geographic patterns in population trend of Neotropical migrants in North America" provides a compilation of short-term and long-term population trends taken from the data of the North American Breeding Bird Survey and organized according to habitat requirements for one hundred of the most familiar species of non-passerines and passerines. Robbins' et al. paper on "Comparison of Neotropical migrant landbird populations wintering in tropical forest, isolated forest fragments, and agricultural habitats" reports on a six year study carried out at over seventy-five sites in seven countries. Their findings are reported by species and habitat type.

Formulated by the symposium's participants and still to be addressed, the questions posed are both disturbing and thought-provoking. Certainly a great deal of research has already been done, but the need remains for more. Clearly the problems of population decline are multifaceted: it isn't enough for a migrant landbird to obtain a nesting site. It must also find a mate, food sources to feed the young, and then wintering grounds on which to spend the rest of the year. The hope for solutions lies in the commitment of conservationists to "tease apart" the differing factors impacting on the overall problem of migrant landbird population management. This book shows that they have made a good start.—Jacqueline Spencer

FINDING BIRDS IN SOUTH CAROLINA

Robin M. Carter. 1993. University of South Carolina Press. Columbia, SC. Paperback, 254 pp. incl. index.

South Carolina has a long and distinguished history of bird study going back to colonial times and some of the most interesting of North America's avifauna are inextricably interwoven with the state. It is difficult for me to think of Carolina Parakeets without visualizing the low-country swamps of the Francis Marion Forest, or imagine the probably extinct Bachman's Warbler without thinking of I'On Swamp. Located as it is on the northern edge of the sub-tropical zone, South Carolina has the advantage of being the closest place to go to see really interesting birds. But as all members of the Carolina Bird Club know, finding those birds and the places where you are most likely to find them can be a difficult and time-consuming process.

Former CBC President, Robin Carter has taken some of the difficulty out of this process by writing what will probably be the definitive guide to prime birding sites in South Carolina for the indefinite future. Carter has birded all over South Carolina for years and has shared his experience in this 254 page volume. The book is laid out in three major (but unequal) sections; General Information, Site Information, and Species Accounts.

The first section on general information is thirteen pages long and provides a brief description of the state and instructions on how to make use of the guide. This is very basic information and should be read by anyone interested in birding in South Carolina. What I found particularly helpful was the provision of precise definitions of where Carter considers the boundaries to be separating the Piedmont from the mountains on one side and the Coastal Plain on the other. As these boundaries are rather vague geologically, but referred to repeatedly in most of the literature, it is extremely helpful to have some points of reference. Carter also points out the value in having a decent road map of the state and while none is provided in the text, he does supply excellent instruction on how to procure them at several levels of precision.

The second section of the book is by far the largest, consisting of 210 pages of specific information about sites (or areas) organized by counties arranged in alphabetical order. This can provide difficulties if you don't know what county you want to work in initially and can make reading the book sequentially somewhat distressing. The alphabetical sequence of counties in no way corresponds to the geographic relationships of the counties (nor should it), but this means you can bounce from the coast to the mountains to the Piedmont in twenty pages making it easy for you to become, at least mentally, lost. However, the entries within each county provide directions (often with effective sketch maps) on how to get to some of the most productive birding areas within that county. While I have not yet field tested the directions, they do appear to be remarkably complete.

The third section of the book is invaluable because it provides a way of tying together the birds that people are most likely to want to see with the areas where they are most likely to be seen. This section takes up only twelve pages, so you will not find instructions on how to find the really common species like Northern Cardinal, Red-bellied Woodpecker, Carolina Chickadee or Gray Catbird. But if there is something a little unusual that you want to look for in South Carolina, this is the section that will give you some guidance.

It is important to emphasize that this book is an extremely valuable reference work and not a novel, and consequently it will be most useful to you if you use it as a source of information rather than trying to read it as a novel. I believe that there are two circumstances in which this book's value can be illustrated most effectively. The first of these is when you know where you are going in South Carolina for whatever reason (that may have nothing to do with birding) and you know that you will have some spare time to get out and look for birds. You have to spend a weekend in Colleton County because an obscure in-law is getting married. All you need to do is look up the appropriate county (or those that are adjacent) and follow the directions to the best birding sites in the neighborhood. The second circumstance is to look up the species on your "wish list" in section three and find which sites in South Carolina have the best chances of providing your sighting. Then get the directions from section two, and you're off.

Despite my strong admiration and appreciation for the content of this book, I am not wildly enthusiastic about its appearance. I think that the san serif typeface (san serif means without those little caps on the tops and bottoms of the straight parts of the letters) is hard to read, particularly in that small a font size. The small type size almost necessitates using the two column format which I also think detracts from the ease of reading. Other than these aesthetic complaints, I strongly advise everyone in the Carolinas to get a copy as quickly as possible.—H.T. Hendrickson

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50 Years of Carolina Birding — A Retrospective

BOB HOLMES

This year, 1993 marks my 50th year of birding in North Carolina. Because this 50 year period has seen a number of changes in bird distribution and populations as well as in birding and birders in this state, I felt that a review of some of these changes might be of interest to those readers of *The Chat* who have been involved in birding for a shorter period of time. My approach to the hobby has been that of a amateur. Thus, some of the following comments and sometimes anecdotal observations may be inexact. They will have to be forgiven as prattle from a member of the bifocal, hearing-aid generation whose primary involvement in science has been the medical profession.

Birding

First, some reflections on birding itself. It may be difficult to envision the dramatic increase in human mobility that has taken place over recent decades. Before the 1950s automobile ownership was not universal as it seems to be today, certainly not before the age of college graduation. This tended to limit many of us to birding in our own locality. The idea of crossing the length of the state to "chase" a rare bird was an unheard-of impracticality. I recall riding passenger trains from my home in Mount Olive as a means of transportation to bird counts in Wilmington and Greensboro. For many years a large percentage of the information on eastern North Carolina birds came from excursions to the area by the Brimleys and others and from various wildlife refuge wardens. The important point to be made from this is that many later findings about birds in the east, especially in regard to seasonal distribution of birds, that were interpreted as changes were not true changes but actually represented a more accurate picture of long standing patterns. For instance, I know from personal observations that some species, including Great Egret (*Casmerodius alba*) and Forster's Tern (*Sterna forsteri*), were more common winter birds on our coast than described in the 1942 edition of Birds of North Carolina (Pearson, Brimley and Brimley), although the two species named in this example seem to have continued to increase. Of course, the problem of differentiating real changes in bird populations from apparent changes resulting from improved information that comes from better coverage of an area by birders is not limited to eastern North Carolina.

In addition to improved mobility afforded birders and an increase in the numbers of birders, these past fifty years have provided a wonderful improvement in the tools at our disposal. One must examine a copy of an early edition of the Peterson field guide, with its mostly black and white drawings, to appreciate its evolution into the array of excellent field guides now available. The improvement in optics has been equally striking. Coated lenses did not become available to the non-military until the end of World War II, and most binoculars tended to have narrow objective lenses, 8x25 and 8x30 being the more common dimensions. Among the more welcome developments has been the replacement of shotguns by cameras with telephoto lenses for the verification of rare findings. My interest in birding came at the end of the shotgun era, and many of us were adept at making study skins of collected birds.

I do not recall when I first saw my first spotting scope, but I do know that for some time I was the only one in my group of birding friends who had a telescope of any description. It was an old brass pull-out type. To support and steady the telescope I trimmed and carried a hardwood sapling about six feet long with a fork at its tip, in which I couched the scope after sticking the end of this monopod into the ground. It pivoted about as well as modern tripods, was much lighter, was less expensive and doubled as a deterrer to the occasional dog that challenged this suspicious person.

Taxonomic Changes

Another change I might touch on is the lumping and splitting of various species of birds. A review of this subject would be too involved for this writing. I will mention just two examples. Formerly, the "Myrtle Warbler" (*Dendroica coronata*), which has been renamed Yellow-rumped Warbler, was separated from "Audubon's Warbler" (*Dendroica auduboni*). The Alder Flycatcher (*Empidonax traillii traillii*) has been split into Willow Flycatcher (*Empidonax traillii*) and Alder Flycatcher (*Empidonax alnorum*). Somehow I would still like to think of the "Ipswich Sparrow" as a separate species rather than as a subspecies of the Savannah Sparrow (*Passerculus sandwichensis*).

Then there's the matter of changes in the common names of various species. I am afraid that for me a Whimbrel (*Numenius phaeopus*) will always be a Hudsonian Curlew, a Tundra Swan (*Cygnus columbianus*) always a Whistling Swan, and a Magnificent Frigatebird (*Fregata magnificens*) always a Man-o'-War-bird. Happily, the pendulum has been known to swing as in the case of the Bachman's Sparrow (*Aimophila aestivalis*) which was transiently called "Pinewoods Sparrow". One does not have to be a taxonomist to agree with the indication for such long overdue changes as from "Wood Ibis" to Wood Stork (*Mycteria americana*).

Changes in Distribution and Numbers

Now to proceed with mentioning some of the more dramatic shifts in bird distribution and changes in abundance that have taken place within the past half century. Certainly, no new ornithological observations will appear here. But, again, I hope to touch on some of the highlights that may not be appreciated by those who have been birding in North Carolina for a shorter period of time and to further impress upon others the dynamic status of bird populations and distributions. The recent surge of interest in pelagic birds has produced a profusion of new data; but the data were scant on these birds (especially the families Procellariidae and Hydrobatidae) in the Carolina offshore waters prior to about fifteen years ago. It would be presumptuous to say that the expansion of our knowledge regarding the distribution of these species reflects any actual change.

The most dramatic saga of this era, and one familiar to each of us, is that which we might speak of as the ebb and flow of the "DDT birds", particularly the Brown Pelican (*Pelicanus occidentalis*), the Osprey (*Pandion haliaetus*), the Bald Eagle (*Haliaetus leucocephalus*), and the Peregrine Falcon (*Falco peregrinus*). Of these, it is my impression that the Brown Pelican's rebound has been the most striking and the Peregrine's the least so. Before DDT, wintering Bald Eagles could be found readily almost anywhere along the coast. I have no memory of the Peregrine Falcons having ever been common here in the first place.

Although bird protection laws existed much earlier than 50 years ago, the full resurgence of the terns and wading birds, following their decimation by the millinery trade, was still underway at least through the fifties. The stories of the Glossy Ibis (*Plegadis falcinellus*) and the White Ibis (*Eudocimus albus*) are a bit more complicated in that these species have shown a true northward extension of their breeding ranges since the mid-fifties, along with increases (transiently?) in their overall numbers.

How many generations into the future will it be before we again witness a two-continent range extension without the assistance of Man, as in the case of the Cattle Egret (*Bubulcus ibis*), which found its way to North Carolina in 1956?

On the less happy side is the alarming diminution in numbers of Anseriformes, including the fairly recent precipitous decrease in the population of migratory Canada Geese (*Branta canadensis*) in eastern North Carolina. The Wood Duck (*Aix sponsa*) responding to habitat improvement and legal protection, represents a shining exception to this sorry picture.

The Great Cormorant (*Phalacrocorax carbo*), formerly rare in the Carolinas, has become a regular winter resident along the entire length of the coast beginning in the 1980s and is increasing in numbers. The winter population of Double-crested Cormorants (*Phalacrocorax auritus*) continues to increase, with flocks numbering in the thousands now being a common sight along the coast. In addition, this species is now being reported frequently during both winter and summer in the Piedmont and is even being seen in the mountains. There are now breeding reports of Double-crested Cormorants from Jordan Lake.

Several gull species have undergone striking seasonal and populational changes. The Great Black-backed Gull (*Larus marinus*) was a winter Outer Banks specialty until it began expanding its range in the early 1950s. By 1973, it had become a breeding bird in North Carolina, and now may be found regularly year-round in the lower portions of the larger rivers as well as along the coast, where its winter population increase has been explosive. There are now scattered reports of this species in the Piedmont. Within the past ten years the Lesser Black-backed Gull (*Larus fuscus*) has become a regular winter species, at least along the Dare County coast, before which time it was considered very rare. Herring Gulls (*Larus argentatus*) were not known to nest in North Carolina until 1962. Over recent years its numbers, and to an even greater extent the numbers of Ring-billed Gulls (*Larus delawarensis*), have markedly increased—especially during the winter months. Also impressive has been the westward extension of these two species within the Carolinas.

There was what appeared to be an extension of the breeding range of the Common Ground-Dove (*Columbina passerina*) as far north as Carteret County during the 1970s. Since that time, the species has again become rare in southeastern North Carolina.

The Whip-poor-will (*Caprimulgus vociferus*), formerly not known to breed east of the inner coastal plains, is now being found as a breeder in the pine plantations as far east as the Croatan Forest. Another caprimulgid, the Common Nighthawk (*Chordeiles minor*) has shown a progressive decrease in numbers, at least in eastern North Carolina.

The plight of the Red-cockaded Woodpecker (*Picoides borealis*) has had a place on center stage; but numbers of the Red-headed Woodpecker (*Melanerpes erythrocephalus*) have also decreased, this being especially apparent in the wintering population. Conversely, the adaptability and improving status of the Pileated Woodpecker (*Dryocopus pileatus*) has been a pleasure to witness.

In 1952 I saw my first Barn Swallow (*Hirundo rustica*) nest—at Cape Lookout. Prior to that time the species was known only as a very common migrant. Since the fifties their breeding range has extended centrally from both the east and west to include the Piedmont and Coastal Plains of the Carolinas.

The Bewick's Wren (*Thryomanes bewickii*) seems to have vanished from the Carolinas. From my reading I get the feeling that this range shrinkage was already underway more than fifty years ago. Over a more recent period of time, the breeding range of the House Wren (*Troglodytes aedon*) has extended southeastward to include the entire Coastal Plain of North Carolina.

The well recognized decrease in Loggerhead Shrikes (*Lanius ludovicianus*) seems to have been most drastic in the early 1980s.

Almost across the board decreases in the numbers of neotropical migrants is one of the stories of the hour, and unfortunately, is not a problem peculiar to the Carolinas. This development is too complicated to be detailed in this space. Among this group of birds, the most intriguing history is that of the Bachman's Warbler (*Vermivora bachmanii*), which was rediscovered near Charleston during the late 1940s only to disappear once more. I suspect the explanation of its fate is multifactoral. Northern Orioles (*Icterus galbula*) were chiefly known as migrants east of the mountains, but have become regular wintering birds since the late 1940s and occasional breeders since the 1950s. Blue Grosbeaks (*Guiraca caerulea*) seem be have become more common; but Painted Buntings (*Passerina ciris*) are more difficult to find now, in contrast to perhaps 25 years ago. This condition is undoubtedly related to increasing development of their coastal habitat.

These fifty years have seen an amazing increase in the numbers of Common Grackles (*Quiscalus quiscula*) regardless of the season. Fortunately, we no longer have to expend any effort to determine whether we are seeing a "Purple Grackle" versus and "Bronzed Grackle" versus a "Florida Grackle" as we once did.

House Sparrows (*Passer domesticus*), formerly a prominent part of the avifauna of every yard and small town street, are now much less common. I suspect there are reasons for this change in addition to the decreased availability of horse manure and the incursion of House Finches (*Carpodacus mexicanus*) which have been postulated as explanations.

A "finch year", in which we see unusually large numbers of finches coming south, may be a phenomenon of the past. It was not until the early 1950s, however, that these winter emigrations included large numbers of Evening Grosbeaks (*Coccothraustes vespertinus*).

Birding Personalities

In conclusion I would like to mention four birders from this era who deserve special recognition. Perhaps there are others who are equally noteworthy, but these are four people I am privileged to have known personally.

First, C.S. Brimley. Although we remember Mr. C.S. as an ornithologist or birder, the scope of his knowledge of natural history in general was impressive. He was a soft-spoken gentleman who was able to tolerate and encourage a novice birder and, on the other hand, had little patience with reports he considered unreliable—to the extent of once completely disqualifying a Christmas Count that he felt contained too many highly unlikely species of birds. His response to questions was prompt and thoughtful, always in the form of handwritten postal cards. He was the oracle.

A similar person, of a bit later vintage, was E.B. Chamberlain. Mr. Chamberlain was a reserved but warm individual with a great sense of humor, all of which tended to conceal his depth of knowledge in various areas of natural history in general as well as of birds in particular. His contributions to birding in the Carolinas went far beyond his having co-authored *South Carolina Bird Life*.

The third person I shall name is the other co-author of *South Carolina Bird Life*, Alex Sprunt, Jr. Not only was Mr. Sprunt known for his writing and his work with the National Audubon Society, but also he was especially impressive in the field identification of birds. He was a young birder's idol, whom I often thought of as our southern Ludlow Griscom.

Finally, there was Edna L. Appleberry, who, though quite different from the above personalities, deserves special mention when one thinks of those who contributed to Carolina birding from the 1940s to the 1960s. Mrs Appleberry never pretended to be an ornithologist or even an eminent birder. She was, however, the equivalent of a one-person ornithological chamber of commerce for southeastern North Carolina. It was partly due to her effort that a greatly improved knowledge and appreciation of birds in this area has come about. Mrs. Appleberry and her wonderfully tolerant husband, Cecil, are also remembered for having helped and encouraged a number of youths who are now outstanding birders.

Certainly the next fifty years of Carolina birding will produce as many interesting developments and changes as have the last fifty. There will surely be as many challenges for the birds and the birders. I do hope that the baton being passed to the new generation of birders will carry with it the immense pleasure that birding has afforded me and my generation.

Appreciation is expressed to John Fussell for his review of this paper. Any errors, however, are attributable to the author.

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General Field Notes

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NOTICE

Publication of any unusual sightings of birds in the Field Notes or Briefs for the Files does not imply that these reports have been accepted into the official Checklist of Birds records for either North or South Carolina. Decisions regarding the official Checklists are made by the respective State Records Committees and will be reported upon periodically in THE CHAT.

First Documented Record of Black Guillemot (*Cepphus grylle*) in South Carolina

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On 27 November 1992, a juvenile Black Guillemot (*Cepphus grylle*) was discovered at the tip of the south jetty at Huntington Beach State Park, Georgetown County, S.C. Besides myself, four others (Katherine Hunt, Nicholas Gard, Spencer Mortensen, Heather Sutton) saw the bird. After reaching the end of the jetty, we saw an alcid that had the general appearance of a guillemot. I have seen Pigeon Guillemots (*Cepphus columba*) in Washington State, and others in the party were familiar with Black Guillemots. After consulting our field guides, we decided that the bird was a juvenile Black Guillemot. We first saw the bird at 1015 h (high tide) for 30 minutes at ≥ 8 m. I returned at 1415 h to further observe and photograph the guillemot.

A Horned Grebe (*Podiceps auritus*) swimming close to the guillemot allowed direct size comparison. The Black Guillemot's neck was long but noticeably shorter than the grebe's and both species were the same body length. The guillemot was chunky in appearance and swam high on the water. The wings were darker than the rest of the body. The scapulars were tipped with white, and the white wing patch was broken up by dark-tipped feathers. When shown in flight, the underwing (almost white with darker trailing edges) and bright reddish-orange legs were distinctive. The bird's upperparts were whitish, with prominent black areas on the hindneck and nape. The mantle, back, and rump were mottled black and white and the underparts were white.

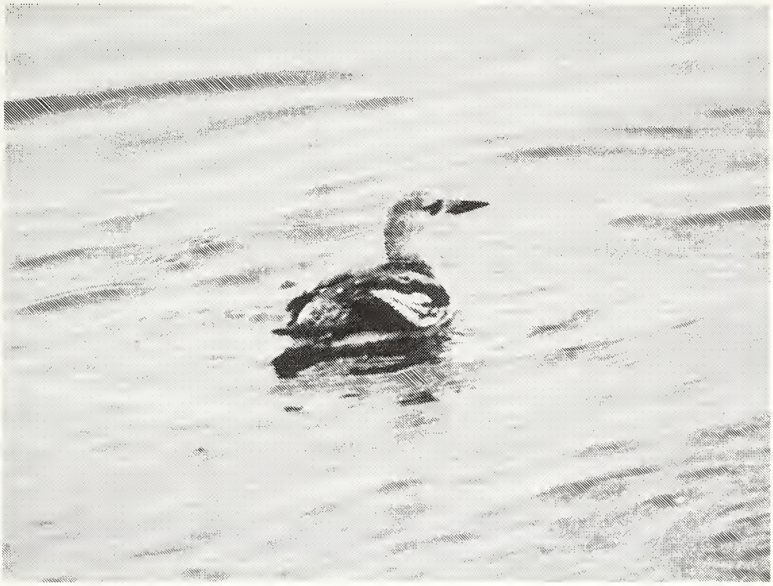

Fig. 1. Juvenile Black Guillemot at Huntington Beach State Park, S.C., on 4 December 1992. Photo by Jack Peachey.

The guillemot used the rock jetty as a feeding area. We observed the bird consume small fish and what appeared to be a starfish. The bird would swim away from the jetty (< 100 m) to preen and loaf or when disturbed by human activities around the jetty.

There have been two reports of the Black Guillemot in South Carolina (Probst 1976). The first was an adult on 21 September 1958 at Morris Island by A. Mikell and was reported by A. Sprunt, Jr., in J. D. Donehue's column in the Charleston *News and Courier*. The second sighting also was of an adult by Probst and his party on 17 April 1975 at Huntington Beach. The guillemot was 150–180 m offshore, and could not be photographed. Based on the first report, Sprunt and Chamberlain (1970) listed Black Guillemot as hypothetical. Black Guillemot is classified as Provisional I by Post and Gauthreaux (1989) and only the second sighting is accepted by the authors.

This is the first record for Black Guillemot in South Carolina that is documented with a photograph. The sighting report and photograph were accepted by the S. C. Bird Records Committee. Black Guillemots normally winter adjacent to their breeding range, and are usually seen as far south as Rhode Island. They are casual south to Long Island, New York, and southern New Jersey (Harrison 1985).

I thank two anonymous reviewers for their helpful comments on an earlier draft of this manuscript.

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Western Races of the Common Nighthawk on the East Coast of North America

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On 4 October 1974, Robert B. Berry and F. Prescott Ward found a Common Nighthawk, *Chordeiles minor*, dead on the beach at Assateague Island, Worcester County, Maryland. The bird (USNM 575735) was an immature male, testes 2 x 1 mm, with molt on the head and neck (wing 188.0 mm, tail 99.1 mm). Laybourne identified the specimen as *C. m. sennetti* by its extremely pale gray coloration and fine vermiculation in comparison to a series of *C. m. minor* in the U. S. National Museum of Natural History (USNM). This western form of the Common Nighthawk breeds only as far east as southwestern Minnesota (American Ornithologists' Union [A.O.U.] 1957). Extralimital records of *sennetti* east of the Mississippi River are three collected in Ohio in August and September (Aldrich 1936, Hicks 1938), and one taken in Kentucky in September (Mengel 1965).

On 16 October 1983, Post collected an unusually pale buffy nighthawk during the course of a mist-netting operation on Sullivan's Island, Charleston County, South Carolina. It was captured in a 20 x 50 m grassy opening between two dense thickets of wax myrtle (*Myrica cerifera*). The specimen (USNM 600021), an immature female (wing 192.0 mm, tail 99.6 mm, weight 58.5 g), was identified by Laybourne and R. W. Dickerman as *C. m. howelli.* it was compared to six juvenile specimens of *C. m. sennetti* (USNM 5595, 240406, 404957, 576014, AMNH 61220, 825220) from northeastern Kansas, North Dakota and South Dakota, and two juvenile specimens of *C. m. howelli* (KU 15971, USNM 589925) from southeastern Kansas and New Mexico, in addition to the *C. m. minor* in the USNM. The dorsum of this specimen is more rufescent and black and not as finely vermiculated as the juvenile *sennetti.* The markings on its underparts are finer, paler and more rufescent, with less barring. The undertail coverts are less distinctly barred than in *C. m. minor*, in which they are heavily barred. *Chordeiles m. howelli* breeds as far east as central Oklahoma and north-central Texas (A.O.U. 1957).

Both *C. m. sennetti* and *C. m. howelli* winter in South America. Individuals leaving their breeding range would be expected to move directly southward over the central states, Louisiana, and Oklahoma, a route documented by the few migrant specimens available (A.O.U. 1957). The two extralimital records treated here may be examples of eastward, wind-influenced displacement of fall migrating individuals (Gauthreaux and LeGrand 1974, Gauthreaux 1980).

Acknowledgments: We thank the curators of the University of Kansas Museum of Natural History (UK) and the American Museum of Natural History (AMNH) for the loan of specimens. Robert W. Dickerman examined the specimens and assisted in the identifications. We are grateful to M. Ralph Browning and Richard C. Banks for helpful suggestions in preparing the manuscript.

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CBC Rare Bird Alert
(704) 332-BIRD

Open Letter to the Membership of the Carolina Bird Club

Department of Biology
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Greensboro, NC 27412
August 1, 1993

Dear Members,

In February 1993, the Executive Board of the Carolina Bird Club voted to establish an annual award to encourage the involvement of young students in the study of birds. This award will be a monetary prize of at least $300 taken from the royalties earned from the sale of *Birds of the Carolinas* by Eloise Potter, James Parnell and Robert Teulings.

The authors' goal in establishing this fund was threefold. First, they wished to use it as a mechanism to thank the many volunteers who had contributed information and photographs that were used in the book. Second, they wanted to recruit more young people into the study of Carolina birds. Finally, as former editors of either *The Chat* or the column *Briefs for the Files*, they were trying to solicit more submissions of manuscripts for publication in *The Chat*. As the present editor of *The Chat*, I heartily applaud this last goal.

My purpose in writing to you at this time is to make you aware of the existence of this award and to encourage you to make this information available to your students. I have enclosed a copy of the administrative proceedures for implementing the program to use as guidelines in making nominations.

The Chair of the Award Committee for this year is:

Mr. Peter Worthington
716 Almond Drive
Simpsonville, SC 29681

Sincerely,

H. T. Hendrickson, Editor
The Chat

Administration of CBC Scholarship Committee

1. The President of CBC should appoint a Scholarship Committee under the provisions of Article XI, Subarticle II (section on General Committees). Appointments should be made by 1 July.

2. This committee shall be composed of four members of the Carolina Bird Club (one Vice President who shall serve as Chair, the Editor of *The Chat,* the editor emeritus of *The Chat* and one other person).

3. This committee will report directly to the Executive Board and have no authority to spend money without approval of the Executive Board.

4. The Scholarship Committee shall send out annually (by 1 September) a call/notice asking for nominees for the scholarship. This call/notice should be sent to all professional ornithologists in the Carolinas. These people will be primarily from college and university biology departments but may also include others who might have contact with students of bird biology, such as museum curators, non-game species personnel with the state wildlife agencies or key contacts within the state departments of Public Instruction. This same call/notice shall be sent to the general membership of the Carolina Bird Club by means of the *CBC Newsletter* and *The Chat.*

5. The Scholarship Committee shall keep all potential nominators informed about the guidelines for selection of scholarship recipients (see points 8, 9 and 10 below) and amounts of funds available.

6. The Scholarship Committee shall submit to the Executive Committee a report of nominations received and recommendations for scholarship awards by the annual Winter Meeting.

7. The Scholarship Committee shall submit to the Editors of *The Chat* and the *CBC Newsletter* information about the Scholarship Committee's work for publication after action has been taken by the Executive Board at the annual Winter Meeting.

8. As the purpose of the scholarship is to encourage ornithological studies by young people, the nominees must have been registered students at some recognized "school" at the time that the "work" was done. Student status can be established by recommendation by a recognized (recognizable) faculty advisor.

9. The "work" may be any publishable information about any aspect of birds in the Carolinas. There must be a document (paper, manuscript) that can be published in *The Chat* or some other ornithological journal. (Our intent here is to reward work that has been done, not work that is planned or will be done.)

10. All nominations for scholarship awards must be submitted in quadruplicate to the Chair of the Scholarship Committee by 1 December.

11. Presentation of the Scholarship Awards shall be made at the annual Spring Meeting.

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1992)

RED-THROATED LOON: Henry Link, Lynn Moseley, and Herb Hendrickson observed one on Lake Townsend at Greensboro, N.C., from 30 October to 1 November.

COMMON LOON: Late and out of habitat was one found alive in a parking lot in western Forsyth County, N.C., on 19 May (John Rapers, fide Ramona Snavely).

HORNED GREBE: One seen on 14 September by Pat Moore and Diane Andre was very early at Cape Hatteras point, N.C. Simon Thompson had a good mountain count of 15 grebes at Lake Osceola in Hendersonville, N.C., on 22 November.

EARED GREBE: The only fall report was an individual again present at the sewage ponds at Goldsboro, N.C., where Eric Dean saw it from 28 September to 20 October.

BLACK-CAPPED PETREL: On pelagic trips off Charleston, S.C., three were seen on 29 October (Lex Glover party) and one on 31 October (Dennis Forsythe). The best fall count off Oregon Inlet, N.C., was 128 tallied by Brian Patteson and others on 30 August.

HERALD PETREL: Brian Patteson photographed a bird in light phase, over only 17 fathoms of water, off Oregon Inlet on 8 August. Most of the records of this species in North American waters have come from North Carolina.

CORY'S SHEARWATER: Excellent counts off Oregon Inlet were 945 on 8 August (Brian Patteson), 1262 on 4 September (Todd Hass), and 916 on 19 September (Patteson). The best counts off Charleston were 30 on 29 October (Lex Glover party) and 20 on 1 November (Dennis Forsythe).

GREATER SHEARWATER: Brian Patteson's best count off Oregon Inlet during the fall was 26 on 8 August.

SOOTY SHEARWATER: Todd Hass clearly observed one off Oregon Inlet on 14 August, a very rare fall sighting for the Carolinas.

AUDUBON'S SHEARWATER: Reports off Charleston were 13 counted by Lex Glover and party on 29 October and one seen by Dennis Forsythe on 1 November.

WHITE-FACED STORM-PETREL: Seldom reported in the last few years, one was an excellent find off Oregon Inlet on 5 September, as noted by Todd Hass.

LEACH'S STORM-PETREL: Brian Patteson saw only one individual on the six trips he made off Oregon Inlet this fall; the bird was observed on 31 August.

BAND-RUMPED STORM-PETREL: This species was seen on seven pelagic trips off Oregon Inlet during August, with the best counts being seven on 17 August (Harry LeGrand, Mike Tove) and six on 10 August (Brian Patteson).

NORTHERN GANNET: One was rare on 15 August at Cape Hatteras point, N.C. (Steve Dinsmore).

GREAT CORMORANT: Steve Dinsmore saw an adult west of Ocracoke, N.C., on 12 and 18 September.

ANHINGA: Though the species nests at lakes in Croatan National Forest, N.C., one seen soaring over nearby NC 58 north of Cape Carteret on 2 August (Scott Hartley) was notable.

MAGNIFICENT FRIGATEBIRD: Always a good find, an immature was observed over Portsmouth Island, N.C., on 28 August by Steve Dinsmore.

LEAST BITTERN: Heathy Walker and Harriett Whitsett heard at least four calling at a marsh south of Charlotte, N.C., on 10 October. Sam Cooper noted a late bittern on 3 November near Aurora, N.C.

REDDISH EGRET: A remarkable influx of egrets was detected along the coast of the Carolinas during the summer, and the flurry of sightings continued into the fall. A dark-phase adult was very rare at Oregon Inlet on 17 August (Harry LeGrand et al.) and at nearby Salt Flats on Pea Island on 29 August (Roger McNeill). Even more unusual was a white-phase bird at South Pond on Pea Island on 15 August (Steve Dinsmore, Mike Tove, and party). Other reports for coastal North Carolina were one at central Ocracoke Island on 10 September (Pat Moore et al.), up to three at Portsmouth Island from 21 August to 11 October (Dinsmore), up to three at New Drum Inlet from 1 August to 23 October (Dinsmore), one at Fort Fisher on 22 August (Gene Howe) and three there on 26 September (Carolina Bird Club party), and one at Sunset Beach on 22 August (Howe). Along the South Carolina coast were one at Huntington Beach SP on 6 September (Lex Glover et al.), up to two egrets in the Harbor Island and Hunting Island area from 30 September to 11 October (Glover, Robin Carter), and one at Savannah NWR on 27 September (Anne Waters).

YELLOW-CROWNED NIGHT-HERON: Ramona Snavely and others reported that a pair fledged four young at a city park in Winston-Salem, N.C., this summer; the birds also nested there in 1991. The nest in 1992 was approximately 107 feet from the ground in a shortleaf pine. Locally rare was an immature seen in mid-August in a yard in Fuquay-Varina, N.C., by Karen and Glenn Ferrand.

GLOSSY IBIS: Gene Howe observed one on 20 August at Goldsboro for the only inland report of the fall season.

ROSEATE SPOONBILL: The immature seen during the summer at Eagle Island near Wilmington, N.C., was last reported on 29 August by Jeremy Nance.

WOOD STORK: An immature was very rare inland near Sumter, S.C., where one was seen from 10 to 13 August by Jason Blevins, Lex Glover, and Evelyn Dabbs. Ralph Widrig observed a stork circling over Fort Fisher, N.C., on 14 October.

TUNDRA SWAN: Rare and early was one seen on 2 October at a quarry at New Bern, N.C., by Rich Boyd, Wade Fuller, and Bob Holmes.

GREATER WHITE-FRONTED GOOSE: Always exciting in the Carolinas, one was present at the Cheraw Fish Hatchery in Chesterfield County, S.C., from 20 October to 6 November (John Cely, Lex Glover, and others).

ROSS' GOOSE: Seldom seen inland, and apparently the earliest ever for North Carolina, was an adult seen along the northern shore of Lake Phelps, N.C., on 6 October by Sam Cooper. At Pea Island, where one or two are seen nearly every fall, another adult was observed from 11 October (Bob Lewis, Allen Bryan) to 7 November (Roger McNeill).

EURASIAN WIGEON: This species was reported only from Pea Island during the fall, where present from 16 October onward, with the peak count being an excellent five males on 21 November (Todd Hass, Haven Wiley).

KING EIDER: Haven Wiley had a good count of four birds—an immature male and three females—in flight over the surf at Kill Devil Hills, N.C., on 14 November. He and Todd Hass saw another King in the surf at nearby Nags Head on 22 November.

HARLEQUIN DUCK: The only fall report was a female seen in flight at Bodie Island, N.C., on 29 November by Ricky Davis.

BLACK SCOTER: This species migrates southward along the coast in large numbers in late October and early November. Ralph Widrig documented about 6000 birds per hour flying south past Fort Fisher, N.C., on 27 October, as well as thousands of birds moving south there on 1 November.

SURF SCOTER: Any scoter inland is a rarity; thus, notable was a female or immature male Surf seen at Lake Townsend near Greensboro on 31 October and 1 November (Henry Link, Lynn Moseley, Herb Hendrickson). Another Surf was rather early on 27 September at Bodie Island (Steve Dinsmore).

WHITE-WINGED SCOTER: A female was rare and very early on 12 October, when noted by Eric Dean at Goldsboro, N.C.

COMMON MERGANSER: Ricky Davis saw a female or immature at Jordan Lake, N.C., on 11 October. This might have been one of the birds present in summer at that lake in 1991, though no such summer reports were received in 1992.

RED-BREASTED MERGANSER: Simon Thompson had good mountain totals of 38 at Lake Osceola near Hendersonville, N.C., and 56 at Lake Summit near Saluda, N.C., each on 22 November.

RUDDY DUCK: One was very early at Goldsboro on 30 August (Gene Howe).

AMERICAN SWALLOW-TAILED KITE: Rarely seen away from the coastal plain, one was unusual at Tryon, N.C., where noted by Simon Thompson on 1 September.

BALD EAGLE: The regularly-manned hawk watch at Pilot Mountain SP, N.C., yielded eight eagles between 16 and 24 September, including three on the 24th (fide Toby Gordon).

BROAD-WINGED HAWK: The seasonal count of Broad-wingeds at Pilot Mountain SP was 4435, from 12 September to 2 October; an excellent 3121 were tallied on 23 September (fide Toby Gordon).

MERLIN: Inland records for the fall season were two at Pilot Mountain SP on 23 September (fide Toby Gordon); one at New Bern, N.C., on 1 October (Bob Holmes); one at Asheville, N.C., on 27 November (Gail Whitehurst); and one attacking birds at a feeder in Winston-Salem, N.C., on 30 November (Ann Pollard). Another Merlin was rare in the mountains in spring at Pisgah Forest, Transylvania County, N.C., on 4 April (Rebekah Huggins).

PEREGRINE FALCON: The hawk counters at Pilot Mountain SP tallied four Peregrines on 23 September and singles on 10, 16, and 18 September (fide Toby Gordon). In Transylvania County, N.C., where a pair nests at Looking

Glass Rock, one bird was seen on 10 March near Calvert and one was seen near Pisgah Forest community on 23 and 24 July (Rebekah and John Huggins, Betty McIlwain). Scott Hartley saw another inland bird at Eno River SP, N.C., on 29 September.

PURPLE GALLINULE: Sam Cooper saw an adult and a juvenile at Eagle Island near Wilmington on 2 September.

SANDHILL CRANE: The only fall report was a group of seven cranes seen in flight over Lexington County, S.C., on 27 November by Stanley Reikard.

LESSER GOLDEN-PLOVER: Many observers found the species at the Orangeburg, S.C., sod farm between 5 September and 3 October, with the peak of 11 from 5 to 7 September (Roger McNeill, Robin Carter, et al.). The only other inland report was one near Aurora, N.C., on 20 October (Sam Cooper, Kevin Markham). A few individuals were seen along the North Carolina coast at Pea Island, Avon, Cape Hatteras point, Portsmouth Island, northern Core Banks, and Eagle Island. The most significant of the coastal reports was a very tardy bird at Cape Hatteras point from 11 November (Steve Dinsmore) through the end of that month (John Wright et al.).

PIPING PLOVER: Steve Dinsmore had a good count of 128 at northern Core Banks on 29 August; and a bird banded in North Dakota returned to Bird Shoal at Beaufort, N.C., for the fifth consecutive winter (John Fussell).

BLACK-NECKED STILT: Seldom seen in the Carolinas after September, two stilts were late on 17 October at Pea Island (Steve Dinsmore).

AMERICAN AVOCET: Locally rare was an avocet seen by Robin Carter and Caroline Eastman at Hunting Island SP, S.C., on 11 October.

UPLAND SANDPIPER: The majority of individuals of the species apparently migrate in fall near the coast; thus, noteworthy was an excellent count of 35 birds on 15 August at the Orangeburg, S.C., sod farm (Lex Glover et al.). The best North Carolina count was seven at the Salvo, N.C., campground on 16 August (Steven Mlodinow).

LONG-BILLED CURLEW: The wintering bird at Fort Fisher, N.C., was first noted this fall on 22 August by Gene Howe. Steve Dinsmore, who studied the shorebird migration on a portion of the North Carolina Outer Banks this fall, saw single birds from 1 August to 23 October at New Drum Inlet and on 17 and 18 September at Portsmouth Island. Seven curlews were noted on Raccoon Key, S.C., on 13 September by J. Cox.

HUDSONIAN GODWIT: A remarkable report for South Carolina was a group of 20 birds that flew in and landed at Huntington Beach SP. Irvin Pitts and party observed the birds on 22 August, during unsettled weather. In North Carolina, Scott Hartley had a very good count of seven at Bodie Island on 12 September; Harry LeGrand, Ricky Davis, and others saw one at Pea Island on 12 September; and Steve Dinsmore saw singles at Portsmouth Island on 23 August, 25 September, and 30 October.

MARBLED GODWIT: The best count of the fall was 434 tallied by Steve Dinsmore at Portsmouth Island on 25 September.

WHITE-RUMPED SANDPIPER: The only inland report for the fall was one observed at Orangeburg on 6 September by Caroline Eastman. Two were late along the coast on 20 November at Portsmouth Island (Steve Dinsmore).

BAIRD'S SANDPIPER: The species was poorly reported this fall, with the only sightings being of single birds inland at the Forsyth County, N.C., sewage treatment plant from 6 to 12 October (Ramona Snavely et al.) and at the Orangeburg sod farm from 5 to 8 September (Roger McNeill, Roger Clark, and others).

PURPLE SANDPIPER: Rare at Cape Hatteras was one seen on groins adjacent to the lighthouse on 28 November by Harry LeGrand and John Wright.

CURLEW SANDPIPER: Steve Dinsmore and party observed two at South Pond on Pea Island on 15 August. Dinsmore also observed as many as three birds at Portsmouth Island between August and 11 September; the color-banded bird seen in July was noted as late as 20 November.

STILT SANDPIPER: Late in departing was one seen by Steve Dinsmore on 12 November at Pea Island.

BUFF-BREASTED SANDPIPER: This species seems less common than it was 10 to 20 years ago, and birds were reported from only two Carolina sites during the fall. At Cape Hatteras point, birds were present from 30 September to 25 October, with the peak count of four on 9 October (Derb Carter). Birds were reported from the Orangeburg sod farm from 5 September to 3 October, with the peak count of four on 5 September (Roger McNeill).

RUFF: This rare and elusive visitor was encountered only by Steve Dinsmore during the fall; he observed a female on 7 August at Portsmouth Island and a juvenile male on 12 August at nearby Old Drum Inlet.

WILSON'S PHALAROPE: The best count was ten birds at South Pond on Pea Island, where seen by Ricky Davis and others on 12 September. Steve Dinsmore's peak count was four birds on 30 August at Portsmouth Island, and Rich Boyd had a late individual on 24 October at the western end of Emerald Isle, N.C.

RED-NECKED PHALAROPE: The peak counts off Oregon Inlet were 157 on 17 August (Harry LeGrand, Mike Tove) and 87 on 19 September (Brian Patteson). Rare inland was one seen on Shelton's Lake in western Forsyth County, N.C., from 29 September to 1 October by Ramona Snavely, Sue Moore, and Lloyd Ramsey.

RED PHALAROPE: Always of note onshore, one was seen (along with the other two phalarope species) on South Pond at Pea Island by Steve Dinsmore and party on 15 August. Another was seen at Portsmouth Island on 20 November by Dinsmore. This species is rare on early fall pelagic trips; thus, one was notable off Oregon Inlet on 29 August (Brian Patteson).

POMARINE JAEGER: Though often a fairly common offshore migrant, counts of 30 off Oregon Inlet on 6 September (Todd Hass) and 22 in that area on 8 August (Brian Patteson) were noteworthy.

PARASITIC JAEGER: There were a handful of sightings along the North Carolina coast, as usual, including 17 jaegers (mostly Parasitics) seen from the beach at Fort Fisher from 23 to 27 November by Ralph Widrig. The best count away from shore, where less common than the preceding species, was four off Oregon Inlet on 8 August (Brian Patteson).

LONG-TAILED JAEGER: This very uncommon migrant was seen off Oregon Inlet twice—two on 8 August (Brian Patteson) and one on 4 September (Todd Hass).

SOUTH POLAR SKUA: This species was seen on a surprising number of pelagic trips off Oregon Inlet, where most often encountered in May or early June. Brian Patteson and party saw one on 28 August, one on 30 August, and two on 19 September; Harry LeGrand and Mike Tove saw one on 17 August; and Todd Hass saw one on 8 September. [Because much is still to be learned about the distribution and identification of the handful of skua species, observers should not assume any warm weather skua is a South Polar.—HEL]

LAUGHING GULL: Robert Hader surveyed a usually overlooked habitat—a landfill—and found five Laughings at Raleigh on 21 November and four there on 25 November. Eric Dean saw one gull at Goldsboro on 23 August at sewage treatment ponds. Although often quite common in fall in the tidewater zone away from salt water, a count of 10,000+ seen flying northwest at the eastern end of Lake Mattamuskeet, N.C. (Haven Wiley) was notable.

LESSER BLACK-BACKED GULL: Fall sightings along the North Carolina coast numbered at least 11 reports, including a bird seen during the summer at New Drum Inlet that was still present on 8 August (Steve Dinsmore). The peak count in that state was eight birds at Portsmouth Island on 25 September (Dinsmore). The only fall report from South Carolina was an adult seen by Roger McNeill and Les Todd at Huntington Beach SP on 12 September.

BLACK-LEGGED KITTIWAKE: Steve Dinsmore saw an adult over the surf at Portsmouth Island on 31 October.

SABINE'S GULL: Seldom seen in South Carolina, a Sabine's was noted in the Charleston harbor on 13 September by Roger McNeill, Les Todd, and Megan O'Connor. In North Carolina, one was well studied at Cape Hatteras point on 21 August by Neal and Pat Moore and party, and another was seen off Oregon Inlet on 6 September by Todd Hass.

LEAST TERN: Very late were three seen in comparison with Forster's Terns over the surf at Kill Devil Hills, N.C., on 14 November by Haven Wiley.

BRIDLED TERN: The peak counts off Oregon Inlet were 46 on 29 August and 42 on 19 September, as tallied by Brian Patteson. The best South Carolina count was seven birds off Charleston on 29 October (Lex Glover party).

SOOTY TERN: This species, normally less common offshore than the Bridled Tern, was seen in double-digits only once during the fall off Oregon Inlet—14 birds on 19 September (Brian Patteson).

DOVEKIE: One was photographed about 1/2-mile off Shackleford Banks, N.C., on 9 March by Keith Rittmaster; John Fussell confirmed the photograph.

WHITE-WINGED DOVE: Two were observed at a feeder in Frisco, N.C., from 17 to 28 November. Marcia Lyons, Pat Moore, Harry LeGrand, and dozens of other birders observed and photographed the doves. There are perhaps only a half-dozen records for the state of White-winged Dove.

COMMON GROUND-DOVE: Apparently a first record for Cape Hatteras National Seashore, N.C., was one heard calling and then observed along the Buxton Woods nature trail on 18 August by Peter Hunt. Also rare for that state were two seen on 10 November at Emerald Isle by Bruce Sorrie. Jack Peachey had an excellent count of 12 doves at Huntington Beach SP on 25 November.

BLACK-BILLED CUCKOO: Two were heard calling near Republican in Bertie County, N.C., on 27 August (John Fussell). Single birds were seen in that state on 16 August at Buxton (Steve Dinsmore), on 6 September west of Asheville (Len and Esther Pardue), and on 14 and 20 September at Eno River SP (Scott Hartley, Edith Tatum).

BARN OWL: Jerry Young saw one flying across NC 280 near Mills River, N.C., on 25 October; and Robin Carter and Caroline Eastman saw another flying near I-126 at Columbia, S.C., on 8 September.

SHORT-EARED OWL: The only inland report for the season was five birds again found in fields west of Lake Phelps, N.C., on 29 November (John Wright, Harry LeGrand, and party).

NORTHERN SAW-WHET OWL: One was seen by Eno River SP personnel before dawn near Hillsborough, N.C., on 28 November (fide Scott Hartley).

COMMON NIGHTHAWK: The best count of southbound migrants was 500+ at Hendersonville, N.C., on 6 September, as noted by Simon Thompson.

RUFOUS HUMMINGBIRD: Single adult males were seen at feeders in northern Raleigh, N.C., from 6 to 9 August (Ann Church, Ken Knapp, et al.), southwest of Raleigh from 15 October into the winter (Montie Cox et al.), and at Shallotte from 15 to 17 September (photographed by David Harper). Immature or female *Selasphorus* hummingbirds were observed at Shiloh in Rutherford County, N.C., from 24 October into the winter (Joe Humphries, Pat Wilkison) and at Wake Forest, N.C., from 9 November into the winter (Roger McNeill).

OLIVE-SIDED FLYCATCHER: This rare migrant was reported in fall only once—at Duke Forest near Durham, N.C., on 25 August by Jeff Pippen.

YELLOW-BELLIED FLYCATCHER: Evelyn Dabbs and Lex Glover banded an individual near Mayesville, S.C., on 22 September. Singles were seen on 25 September at Orton Plantation near Wilmington (Simon Thompson) and on 6 October at Goldsboro (Eric Dean).

WESTERN KINGBIRD: Robin Carter and Caroline Eastman had a rare inland sighting of this species near Elliot, Lee County, S.C., on 15 October. Another inland Western was noted by Eric Dean near Aurora, N.C., on 1 November. There were seven reports from the North Carolina coast from 12 September to 15 November; six of the reports were made by Steve Dinsmore.

SCISSOR-TAILED FLYCATCHER: Always elusive in the Carolinas, this species was detected three times: from 1 to 12 October about 5 miles east-southeast of Ulah, Randolph County, N.C. (Ron Morris; photo to the N.C. Museum of Natural Sciences); on 15 October near Elliot, S.C., with the above-mentioned Western Kingbird (Robin Carter, Caroline Eastman); and on 23 October one mile west of the Pamlico River ferry landing (north terminus) in Beaufort County, N.C. (Norm Budnitz).

HORNED LARK: Extremely rare on the southern coast of North Carolina was one found dazed by Barbara Smithwick at Emerald Isle on 3 November. Henry Haberyan identified the bird to this species.

BANK SWALLOW: The best count of fall migrants was 200+ at the Orangeburg sod farm, as reported by Lex Glover and party on 22 August.

BARN SWALLOW: John Wright and party observed a late swallow at Pea Island on 28 November.

SWAINSON'S THRUSH: The best count of this declining migrant was 30+ seen by Simon Thompson at Landrum, S.C., on 30 September.

AMERICAN PIPIT: Early reports were of four on 3 October at Round Bald on Roan Mountain, N.C. (Rick Knight) and one flying over Caesars Head SP, S.C., on 7 October (Simon Thompson).

CEDAR WAXWING: Simon Thompson noted a pair feeding young at Tryon, N.C., on the somewhat late date of 3 September.

LOGGERHEAD SHRIKE: Formerly a regular fall migrant along the coast, the species is now quite rare in such areas. One was thus notable at Fort Fisher, as seen by Jeremy Nance and Greg Massey on 29 August and by Ralph Widrig on 10 October.

WARBLING VIREO: This species generally avoids the Atlantic slope in the fall; thus, noteworthy was a well-described bird seen by Eric Dean at Goldsboro on 30 September.

PHILADELPHIA VIREO: In addition to several mountain reports, single birds were seen along the North Carolina coast at Corolla on 13 September (Jeremy Nance), at Kitty Hawk on 13 September (Nance, Harry LeGrand), and at Fort Fisher on 25 September (Ricky Davis).

GOLDEN-WINGED WARBLER: This is one of the rarer warblers in fall along the coast; therefore, one was a good find on 26 September at Nags Head, N.C., by Mike Sanderson (fide Steve Dinsmore).

BREWSTER'S WARBLER: Simon Thompson and a Carolina Bird Club party noted this hybrid at Carolina Beach SP, N.C., on 26 September. This individual had yellow on the crown and a large golden wing covert bar, but lacked a black throat.

CAPE MAY WARBLER: Somewhat late was one seen by Ricky Davis at Pea Island on 8 November.

CONNECTICUT WARBLER: In the Carolinas, this species is seen in fall mainly along the coast. This season, all three reports were from the North Carolina coast: along the Buxton Woods nature trail on 19 September (Pat Moore, Marcia Lyons, Diane Andre), at Fort Fisher on 25 September (Ricky Davis), and at Pea Island on 8 October (Derb Carter).

WILSON'S WARBLER: Rare coastal plain reports were of single birds seen by Paul Sykes at Pea Island on 12 September, by Rich Boyd and party at New Bern on 2 October, by Eric Dean and Gene Howe at Goldsboro on 1 November, and by Lex Glover at Santee NWR, S.C., on 23 November.

WESTERN TANAGER: Peter Worthington had a female of this species in his yard at Simpsonville, S.C., during the fall, but no date was reported.

PAINTED BUNTING: This species is somewhat elusive in fall; thus, a count of five at Hunting Island SP, S.C., on 11 October (Robin Carter, Caroline Eastman) was of interest.

DICKCISSEL: Ricky Davis heard a migrant calling over Fort Fisher on 25 September for the only fall report.

CLAY-COLORED SPARROW: Single sparrows were noted along the coast on 3 October at Pea Island (Steve Dinsmore), on 12 October at that locality (Bob Lewis), on 10 October at Portsmouth Island (Dinsmore), on 29 and 30 October at Fort Fisher (Ralph Widrig), and on 12 and 15 October at Folly Beach, S.C. (Dennis Forsythe et al.).

LARK SPARROW: This species was reported on seven occasions during the fall, all from the North Carolina coast from 14 August to 2 October. The peak count was only two birds.

LE CONTE'S SPARROW: Sam Cooper observed one in a wet grassy area adjacent to a freshwater marsh near Aurora, N.C., on 3 November.

LINCOLN'S SPARROW: Though not overly rare, this secretive species was encountered only twice during the season—on 1 October at New Bern (Bob Holmes) and on 25 October near LaGrange, N.C. (Eric Dean).

SNOW BUNTING: A few birds reached the North Carolina coast in late fall, as evidenced by sightings of one at Onslow Beach on 6 November (John Hammond), up to three at Cape Hatteras point from 8 to 21 November (Marcia Lyons et al.), and five at Portsmouth Island on 16 November (Steve Dinsmore).

YELLOW-HEADED BLACKBIRD: The adult male seen in Winston-Salem, N.C., in spring (Chat 57:63) was present from 7 April to 1 May, as observed by Evelyn McNeely, Virginia Fowler, Ramona Snavely, and others. Fall reports, all from North Carolina, were of an immature seen at Jordan Lake on 30 August by Jeff Pippen, a bird of unspecified age seen at Cape Carteret in early October by Flo Romanowicz, and an adult male seen at Pea Island on 11 October by Bob Lewis and Allen Bryan.

RUSTY BLACKBIRD: One was rather early on 26 October at Pea Island, as seen by Steve Dinsmore.

BREWER'S BLACKBIRD: Doug Shadwick saw five birds, including several males, near Chapel Hill on 14 November. A female was observed by Eric Dean on 26 November near Goldsboro, where a small flock wintered a year ago. A male was noted by John Wright and a Carolina Bird Club party in plowed fields in central Tyrrell County, N.C., on 29 November.

SHINY COWBIRD: This increasing visitor was seen at a feeder at Cape Carteret, N.C., during the fall. Betsy Gallagher noted a male during September, and John Fussell confirmed the sighting in late October. Henry Haberyan observed two males at the feeder on 29 October, and one male remained to be seen by dozens of birders at least to 14 November.

NORTHERN ORIOLE: This species has declined as a migrant through the Carolinas, but Paul Sykes had a good count of 21 orioles on Bodie Island and 14 more on Pea Island on 12 September.

HOUSE FINCH: Dennis Forsythe noted a pair at James Island, S.C., from August to 8 November, and he saw two more birds at Folly Beach, S.C., on 11 September.

HOUSE SPARROW: Believed to be the first record of the species for Cape Lookout National Seashore, N.C., were three sparrows seen on 15 November at Portsmouth Island by Steve Dinsmore.

Fall reports (August through November, 1993) for Briefs for the Files should be sent to the "Briefs" editor (for address see front inside cover) by Dec. 20, 1993.

A BLUE-BANDED PELICAN!

If you see one of these birds, please contact us! To show our appreciation, we will send you information on the Brown Pelicans of the Chesapeake Bay and Maryland, and when and where the bird you observed was banded. During the summers of 1992 and 1993, 100 fledglings were banded to facilitate study of the dispersal from the two northernmost pelican colonies on the Atlantic coast. Each bird was banded with a blue plastic tarsal bnad bearing a white three-character alpha/numeric code. Historically, young have been recovered from as far north and south as central Long Island, New York, and northern Florida. Please report any observations of these pelicans to:

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